

A ROUTINE MEASURE

TO PREVENT

NEONATAL HEMORRHAGE

Hemorrhagic disorders in the newborn can be strikingly reduced by the administration of vitamin K to mothers during labour. Synkavite, the Roche vitamin K-compound, is the choice of many physicians for routine prophylactic vitamin K therapy because of its all-round theraputic efficiency. Molecule for molecule, it is one and one-half times as active as natural vitamin K, yet relatively nontoxic. Supplied in oral tablets, 5 mgm. eachand ampoules, 1 cc, 5 mgm. or 10 mgm. eachand ampoules, 1 cc, 5 mgm. or 10 mgm. each

HOFFMANN LA ROCHE LIMITED

SYNKAVI

For prescribing

FERROCHLOR

with Vitamin B1 E.B.S.

Secondary Angemia

in Ferrechlor with B₁, the iron is promiting the readily absorbed ferrous tie, rather than the biologics compatible ferric former

In Ferrochlor with B_I, the unpleasant taste of ferrous chloride is successfully masked, thus removing one hindrance to having patients complete a prescribed course of treatment.

In Ferrochlor with B₁, the use of a soluble iron salt obviates the need for using up . . . to dissolve the iron . . . the precious acid of the achlorhydric stomach, typical of many anaemias.

In Ferrochlor with B₁, the addition of thiamin chloride ensures that there will be no slowing down of iron absorption through poor intestinal tonus. Moreover, general muscular tone is so improved that the patient feels better-a big help in successful treatment.



525 Logan Avenue Toronto 6

A WHOLLY CANADIAN COMPANY ESTABLISHED 1879

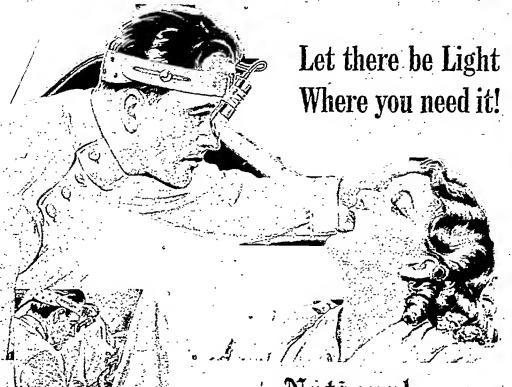


Ferrochlor Liquid, with or without Vitamin B1, E.B.S., is supplied in one pound bottles, winchesters and gallons, and Ferrochlor Tablets, with or without Vitamin B1, E.B.S., are supplied in bottles of 100, 500 and 1:000.

When prescribing Ferrochlor in any of the above mentioned forms, always insert the identifying letters "E.B.S." following the word Ferrochlor-Thus -

R Ferrochlor B, E.B.S. Sig. — as directed





With the "National" you look directly through the center of the projected beam of light, when examining deep body covities or when treating any area through a long, slim



No other instrument is so versatile!

Note ablique adjustment for eye

examination or surgery.



National "Center-of-Beam" Headlight

This patented Headlight is the preferred instrument because it provides an abundance of light for every possible diagnostic or surgical procedure.

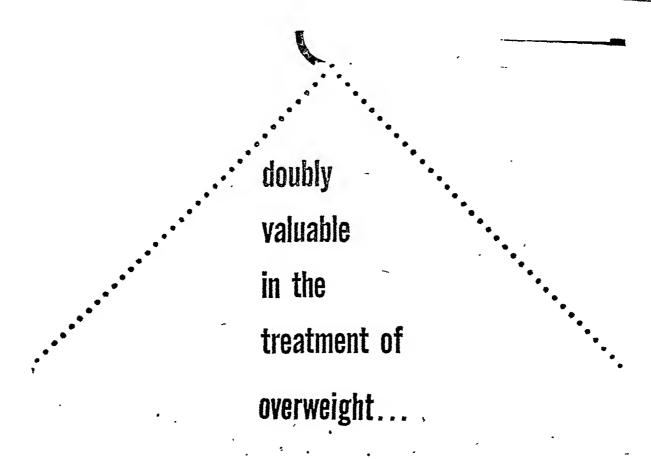
The Matinual "Center-of-Beam" Headlight provides intense illumination with no outside light source to adjust. It can be instantly focused for diverging, parallel or converging light raft; and it provides for direct lighting by removing the reflecting mirror.

MOST COMFORTABLE HEADLIGHT AVAILABLE because of the Universal-Joint type of connection between rubber cushioned forehead rest and headband. The perfectly-formed "Superflex" perspiration-proof headband provides a degree of cool comfort never before achieved.

N1680 COMPLETE SPECIALISTS' "Center-of-Beam" HEADLIGHT SET: Includes the N160 and the N180 fixed voltage transformer.

See Your Dealer or Write to "National"
Wholeszle Members of the American Surgical Trade Association.





In a recent clinical study, Hawirko and Sprague* found that Dexedrine (d-amphetamine) exerts two beneficial actions in the treatment of overweight:

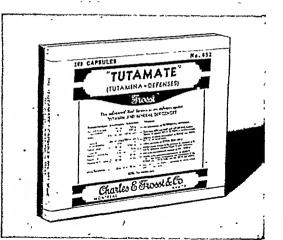
- 1. It depresses the appetite "sufficiently to enable the patient to follow the diet closely without feeling it too great a burden".
- 2. Its unique central nervous stimulant effect combats the feeling of "discouragement and irritability which usually accompanies rigid adherence to prolonged use of a low calorie diet".

 --*Canad. M. A. J. 54:26 (Jan.) 1946

Dexedrine Sulfate tablets

(dextro-amphetamine sulfate, S.K.F.)

"Tutamate"



MULTIPLE VITAMINS
and
MINERALS

INDICATIONS

INDICATION OF PREMATURITY,

FOR THE PREVENTION OF PREMATURITY,

FOR THE PREVENTION OF VITAMIN B, DEFICIENCY,

POLYNEURITIS OF VITAMIN D DEFICIENCY,

NUTRITIONAL ANAEMIA, RICKETS, DENTAL

NUTRITIONAL ANAEMIA, RICKETS, DEFICIENCY,

NUTRITIONAL ANAEMIA, RICKETS, DEFICIENCY,

VITAMIN C DEFICIENCY,

IODINE DEFICIENCY, VITAMIN C DEFICIENCY,

IODINE DEFICIENCY, VITAMIN C DEFICIENCY,

OUTPUT

TO N S

TO N

The Callacead Teniorda.

offers defences against VITAMIN and MINERAL DEFICIENCIES

Principal Ingredients	In each Capsule	In Daily Dase	Ta aid in the—
Iran (os ferraus salts)	1/25 gr. 2500 l.U. 1000 l.U.	2/25 gr. 5000 l.U.	—building of resistance.
Sodium lodide	1/325 gr. 1	I/162 gr.	prevention af iodine deficiency. [protection against and in the
Vitamin B ₁	I mg.	2 mg.	treatment of symptoms of V
Ribaflavin (Vitomin B ₂)		3 mg.	min B ₁ and B ₂ deficiency ling neuritis af B ₁ defi
Niacinamide	5 mg. 25 mg. 6 mg.	10 mg. 50 mg. 12 mg.	—prevention of pell—prevention of —prevention—preventio

"Progesterone"



"Frosst"

Primarily indicated for its value in the prevention of habitual and threatened abortion associated with corpus luteum insufficiency. Other uses are in association with Oestrogens for re-establishing the menses in primary and secondary amenorrhoea. It has also been recommended for use in premenstrual tension, functional uterine bleeding and dysmenorrhoea.

MODES OF ISSUE

AMPOULE No. 560 8 2015,5 mg.

VIAL No. 560 Faul, 5 mg. per cc. — 10 cc. multiple dose, rubber stoppered vials.

VIAL No. 561 Time 10 mg. per cc. — 10 cc. multiple dose, rubber stoppered vials.

FUNCTIONAL UTERINE BLEEDING

"Progestin Oral"

"Trosst"

Brand of Anhydro-Hydroxy Progesterone U.S.P.

An Orally Active Derivative of Progesterone, the hormone of the corpus luteum. It possesses the therapeutic properties of Progesterone with the advantage that it is orally active and its administration is correspondingly simple.

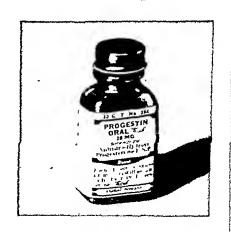
MODES OF ISSUE

C.T. 383 Fine

Progestin Oral Final 5 mg. Battles of 30 and 100.

C.T. 384 Tauf

Progestin Oral Time 10 mg. Bottles of 30 and 100.



REO GESTEROWS

INDICATIONS and DOSAGE

FOR PROPHYLAXIS OF HABITUAL ABORTION: 5 to 10 mg. twice weekly especially during the critical 3rd, 4th and 5th months. For threatened abortion 5 to 10 mg. daily during the critical stages, followed by 5 mg. twice weekly until the danger of obortion has possed.

FOR PRIMARY AND SECONDARY AMENORRHOEA:
Stilboestrol Toust 0.1 mg. two or three times
daily for 17 to 21 days, followed by 5 to 10
mg. of Progesterone Toust on alternate days
for 3 or 4 doses. Bleeding will usually follow
in two or three days ofter stopping medication.

FOR DYSMENORRHOEA this same schedule may be followed, the administration of Stilbaestrol Fixed starting after bleeding from the previous period has ceosed. This course when repeated several months in succession may be followed by complete freedom from dysmenorrhoea ar at least greatly diminished discomfort.

PROGESTIM ORAL

INDICATIONS and DOSAGE

HABITUAL ABORTION

As a prophyloctic measure in patients who have habitually aborted because of corpus luteum insufficiency, 10 mg. doily following the first missed period. This dose should be increased to 20 to 30 mgs. daily for 4 or 5 days at about the time the next menstrual period would be anticipated to occur. This sequence of dosage should be corried out for the first 5 months of pregnancy. When this critical period of pregnancy has possed 10 mg. two or three times weekly to term should be adequate.

THREATENED ABORTION

In coses of threatened abortion which are suspected of being due to carpus luteum failure, Progesterone should be administered by intramuscular injection in doses of 10 mg. daily for 4 to 5 days. This may then be followed by Pragestin Oral Towar 10 mg. daily until the danger of obortion appears to have possed.

P.REMENSTRUAL TENSION

For relief of premenstrual tension 5 ta 15 mg. of Pragestin Oral Frast should be administered daily for about 10 days before the next expected period.

Progestin Orol "Trass!" appears to relieve premenstrual tension equally os well as *"Orchisterone" and Progesterone "Trass!".

* Orchisterone (Testosterone @zout)

AMENORRHOEA

When foilure to menstruate is due to primary ovorian foilure, it moy be desirable for psychological reasons to induce menstruation. This may be occomplished in the following manner and is an attempt to simulate the natural sequence of events. Stilboestrol **Toost** 0.1 mg. two or three times doily by mouth for 17 to 21 days, followed by Progestin Oral **Toost** 10 mg. doily for 3 ar 4 days. All medication is then stopped and menstruation should occur 3 to 5 days later. This course af treatment should be repeated each month. Occasionally after several cycles of induced menstruation have occurred regular cycles may follow without further treatment.

DYSMENORRHOEA

For dysmenorrhoeo associated especially with ovarian insufficiency and or a uterus paarly respansive to hormane levels naturally elabarated, Stilboestrol **Texxx** 9.1 mg. three times daily should be administered for 14 ta 17 days after the previous period has ceased. This should be followed by 10 mgs. daily af Pragestin Oral **Texxx** for 3 or 4 days. Bleeding will usually follow 3 to 5 days after cessation of treatment. Such a cycle of treatment far three ar faur months may frequently afford camplete relief for dysmenorrhoea.

FUNCTIONAL UTERINE BLEEDING

Functional uterine bleeding may be with corpus luteum insuffic the administration of Procantrol the bleeding. A d mgs. should be administed days of the cycle.

"Kondremul"

A SUPERIOR COLLOIDAL TYPE OF MINERAL OIL EMULSION



for the Treatment of
FUNCTIONAL
CONSTIPATION

Kondremul is a gentle and effective laxative. It is pleasant to take, pours easily from the bottle, mixes well with water or milk, and is non habit-forming. Irish Moss (Chondrus Crispus), used as the emulsifying and protective colloid, results in a highly dispersed, stable emulsion, resistant to temperature, dilution and digestion. Kondremul mixes intimately with intestinal contents and produces a soft stool easily passed without straining. Embarrassing leakage almost never occurs.

"KONDREMUL" with B1

A palatable emulsian cantoining 55% mineral oil, and 200 International Units Vitamin B₁ per fluid aunce. May be used a as regulative far children as well as adults.

Battles of 8 and 16 fl. az.

"KONDREMUL" with CASCARA SAGRADA

Combines the tanic laxative oction of non-bitter Extract of Cascora with the effects of Kandremul.

Battles af 16 fl oz.

"KONDREMUL" with PHENOLPHTHALEIN

Laxotive and regulative. Contoins 2.2 grs. phenolphthalein per tablespoonful.

Bottles of 8 and 16 fl az.

We will be pleased to supply a regular size package of any type for your home use on request.

DOSAGE:

ADULTS One tablespaanful night and marning. Gradually decrease as the candition impraves

CHILDREN One ar two teaspaanfuls at night is usually sufficient.

NOW AVAILABLE FOR CIVILIAN USE



Bishop Blue Label Needles

To most physicians who were in military service, Bishop "Blue Label" Needles are already familiar and trustworthy friends. Their unusual ability to perform well, even under the most adverse conditions, has been proved beyond all question by the millions of "Blue Label" Needles supplied to the armed forces before and during World War II. Bishop now makes available, to civilian practitioners as well, these same "Blue Label" Needles, unsurpassed for their resistance to breakage, and for the special hand-finished Bishop point—ideal for every hypodermic needle use.

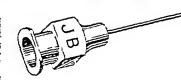
Available, through your regular source of supply, in a complete line of standard lengths and gauges. Write today for booklet describing Bishop "Blue Label" Needles and the other products illustrated at the right of the page. In Canada, address: Johnson Matthey & Mallory, Limited, 198 Clinton St., Toronto 4, Ontario, Canada.

*U S Patent app'ed for

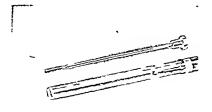


PLATINUM WORKS Malvern, Pa., U. S. A.

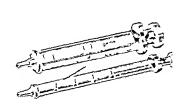




THE "ALBALON"* NEEDLE the first plastic hub needle.

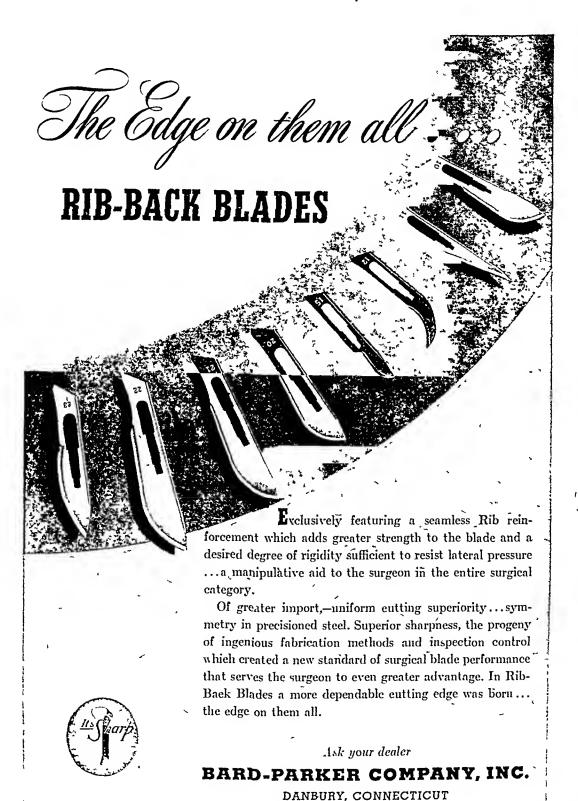


BLUE LABEL CLINICAL THERM METERS - Accurate - sturdy - easily re

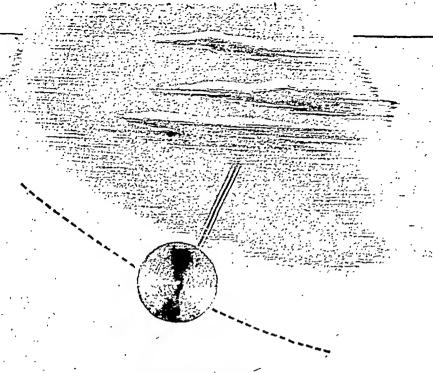


BLUE LABEL SYRINGES Dura - close fitting - clearly mark

B



A BARD-PARKER PRODUCT



BENZESTROL

2, 4-di (p-hydroxyphenyl) -3-ethyl hexane



The power to restore to normal is the greatest gift which the physician may bestow.

In the patient with menopausal symptoms, estrogenic therapy helps to restore normal mental and physiological health—to create balance where there has been imbalance.

BENZESTROL Lederle is a new, potent, orally effective estrogen, low

in cost and excellently tolerated. The clinical literature upon this substance is rapidly increasing.

BENZESTROL has been shown to be effective in the menopausal syndrome, for suppression of lactation, in senile vaginitis and pruritus vulvae, and in other circumstances where there is estrogen lack. Literature will be sent upon request.

Listen to the latest developments in research and clinical medicine discussed by eminent members of the medical profession in the Lederle radio series, "THE DOCTORS TALK IT OVER," broadcast coast-to-coast every Monday evening over the American Broadcasting Company network and affiliated stations.

LEDERLE LABORATORIES DIVISION • North American Cyanamid Limited
1396 St. Catherine Street West, Montreal 25, Quebec, Distributor



(Above) Fitting practice session of recent CAMP Instructional Course

YOUR PATIENTS ARE PROPERLY FITTED When You Recommend CAMP Scientific Supports

CAMP fitters are conscientiously trained to work on the physician's team as technicians in scientfic supports. Annual four-day sessions in New York and Chicago (now in their 19th year), a steady schedule of regional classes, individual instruction by the corps of CAMP registered nurses and professionally edited handbooks and other helpful literature have trained thousands of fitters in prescription accuracy and ethical procedure.

S. H. CAMP & COMPANY OF CANADA, LTD.

Manufacturers, Windsor, Ontario, Canada

World's largest transfacturers of Surgical Supports

Order 19 Hanover Square, London, W. 1, England • Jackson, Mich.
200 Madison Avenue, New York City • Merchandise Mart, Chicago, Ill.



and Convenience

Repository injections of penicillin prepared with Emulgen consist of droplets of penicillin-bearing water isolated by the pure sesame oil and special cholesterin base of this new emulsifying vehicle. Such water-in-oil emulsions of penicillin and Emulgen are quickly prepared and easily injected . . . heat is not required.

Water-in-oil, as opposed to the usual oil-in-water emulsion, prolongs the absorption of penicillin.

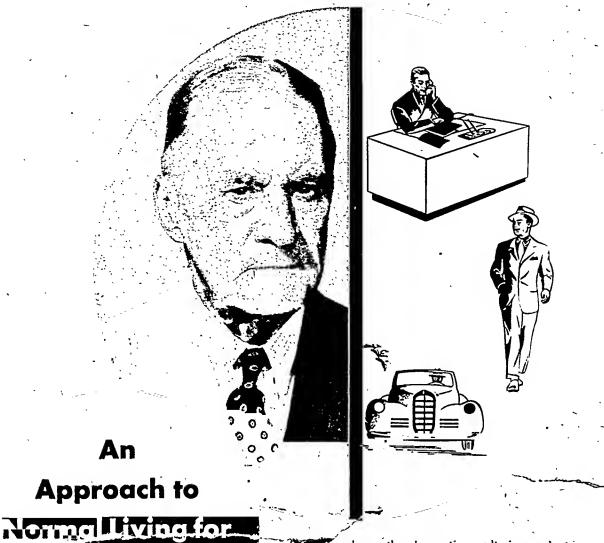
LAKESID

Most mixtures of penicillin with gum or ordinary oils produce an oil-in-water emulsion. When these are injected into muscular tissue the medicament-bearing aqueous phase rapidly passes into circulation leaving behind it a useless bed of oil globules. Emulgen, on the other hand, sheaths medicament-bearing aqueous droplets in envelopes of oil. This water-in-oil emulsion allows the medication to pass into circulation only as the oil is absorbed.

Emulgen prolongs the absorption of penicillin, avoiding the frequent injections which subject physician and patient alike to inconvenience and discomfort. Emulgen is supplied in 10cc rubber capped vials. Lakeside Laboratories, Milwaukee, Wisconsin.



THE WILBY COMPANY, Sun Life Building, MONTREAL, QUE.
STARKMAN DRUG MANUFACTURING CO. LTD., 471 Bloor St., West,
TORONTO, ONTARIO
MARSH, WILDE & COMPANY, 628 Vancouver Block, VANCOUVER, B.C.
BATE AND BATE WHOLESALE DRUGS, 221 McDermot Avenue,
WINNIPEG, MANITOBA



the Chronic Cardiac



Physicians know the dramatic results in respiratory failure through the use of Coramine intravenously. Of equal value in ambulatory patients with chronic cardiovascular disease is

CORAMINE

IQUID This form of Coramine is indicated where drastic action is not required, but where maintenance and progressive improvement are sought. Taken orally, Coramine Liquid enables the patient to move about freely and ta carry on moderate narmal activities with an easy mindin itself an important factor in management of cardiac conditions.

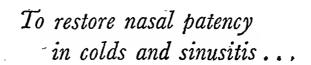
ISSUED:

Liquid, far aral use-battles 15, 45 and 100 c.c.

For intravenous or intromuscular use ompoules of 1.5 c.c. cartons of 5, 20 and 100 5 c.c.—cartons of 3 and 12



COMPANY LIMITED . MONTREAL



Neo-Synephrine decongests promptly ... clears the nasal airways for greater breathing comfort...promotes sinus drainage. Relief lasts for several hours. Virtual freedom from compensatory vasodilatation precludes development of dependency symptoms.

For Nasal Decongestion

THERAPEUTIC APPRAISAL: Prompt, prolonged nasal decongestion without appreciable compensatory reconges-tion; virtual freedom from local and systemic side effects; sustained effectiveness on repeated use.

INDICATED for symptomatic relief of the nasal congestion of common colds, sinusitis and allergic rhinitis.



ADMINISTRATION may be by dropper, spray or tampon, using the 1/2% in most cases, the 1% when a stronger solution is indicated.

SUPPLIED as ¼% and 1% in isotonic saline and ¼% in an emulsion, bottles of 1 fl. oz.; ½% jelly in convenient applicator tubes, 5% oz. .

of Canada, Ltd.

SÝDNEY, AUSTRALIA

AUCKLAND, NEW ZEALAND

Neo-Synephsine Trade Mark Registered



The trails performed annual difference of the combination of difference of the developed in the light of the order of the combination of the combi

Devoted to this A VAI SAICHICH about the work of Parke purished to the create new remediate of the control of t



PARTE DAVIS COMPANY, LTD. . WALKERVILLE, ONTARIO



in making them available . . . TODAY.

ABBOTT LABORATORIES, LIMITED, MONTREAL

Sodium Ethyl - (1-Methylbutyl) - Barbiturate Ab



The Canadian Medical Association Journal

Vol. 56

JANUARY, 1947

No. 1

THE PRESENT STATUS OF ANTIBIOTICS IN THERAPY*

James A. Dauphinee, M.D., F.R.C.P.[C.]

Toronto, Ont.

THE importance of antibiotic materials in modern human therapeutics is now well known to everyone. In the few short years that have elapsed since the first successful application of these substances to the treatment of human disease much has been learned, and we now have a considerable fund of information about them and their clinical application. Undoubtedly the future will see the development of new preparations and extend the scope of the ones now at hand; but, at the present time, the usefulness and limitations of a few antibiotic materials have been fairly well established.

these substances active against the infective agent in the test tube but some of them possess those characteristics which allow them to exert their specific anti-bacterial effect when administered to human patients.

A large number of such antibiotic substances have been prepared but only a few have the necessary properties of high potency, relative stability, and lack of toxicity to make them satisfactory therapeutic agents. These are shown in the first table and include tyrothricin, penicillin and streptomycin.

TYROTHRICIN

Clinically, tyrothricin, 6, 7, 8 made up largely of a mixture of gramicidin and tyrocidine, 9, 1 is the least important of the three for, although it exerts an extremely powerful inhibiting action against Gram-positive organisms and is

TABLE I.

Antibiotics Important in Human Therapeutics

Name	Constituents	Discovered by	Source	Selective action against	Toxicity	Mode of employment
Tyrothricin	Gramicidin Tyrocidine	Dubos (1939)	B. brevis	Gram positive organisms mainly	Marked	Local only.
Penicillin	Penicillins F, G, K, X	Fleming (1929) Florey et al (1940)	Penicillium notatum	Gram positive and some Gram nega- tive organisms	Slight	Topically; local injection; intrathecally; intravenously; intramuscularly; sprays; nebulization; orally
Streptomycin.	Streptamine Streptidine	Waksman (1944)	Actinomyces griseus	Gram negative organisms mainly	Slight	As for penicillin.

Antibiotics may be defined as substances prepared from the products of metabolism of certain living moulds and other micro-organisms, which are able to exert a powerful antagonistic effect upon the life and growth of specific pathogenic bacteria. The antibiotic treatment of diseases caused by such bacteria has developed from the fact that not only are

Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, in General Session, Banff, Alberta, June 13, 1946.

capable of controlling experimental infections in mice when administered intraperitoneally. it has been found to be very toxic. Given intravenously it causes hamolysis of the red blood cells, destruction of the leucocytes, liver necrosis and death. When given intramuscularly or subcutaneously, even in small doses, it produces a local sterile abscess and almost completely loses its therapeutic effect. For these reasons its clinical application has been limited entirely to the treatment of ulcers of the skin and other similar superficial lesions. Even in such conditions it is not very success-

^{*}From the Department of Medicine, University of Toronto, and the Medical Service, Toronto General Hospital.

ful for it is mictivated by body fluids, serum and exudates and it has been largely supplanted by other more effective and less toxic substances It, therefore, will not be discussed further.

PENICILLIN

Penicillin has been, and still is, the most important member of the antibiotic family. Its ability to control infective processes in the body when employed in the proper method and against infections caused by sensitive organisms is unquestioned. Its lack of toxicity and its effectiveness even in the presence of pus, exudates and tissue autolysates, make it a most useful remedy.12, 13, 14

Selective action on certain bacteria.—In using penicillin it must be remembered that it exerts its action only against susceptible bacteria, and has no action at all upon others. Table II

TABLE II.* ANTIBIOTIC SENSITIVITY OF COMMON PATHOGENIC ORGANISMS (IN VITRO TESTS)

A. Sensitive to penicillin	A. Resistant to penicillin but sensitive to streptomycin
am negative diplococci	Gram negalive bacilli

B. coli

B. aerogenes

B. pyocyaneus B. typhosus

B. paratyphosus

B. Friedlanderei

B. dyscnteriæ

B: influenzæ

B. pertussis B. melitensis

B. abortus

B. tularense Streptococcus fæcalis

Acid fast bacilli .

B. tuberculosis

B. proteus

Gra Meningococcus Gonococcus Gram positive cocci Staphylococcus albus and aureus Hæmolytic streptococcus Nonhamolytic streptococcus Anaerobic streptococcus Pneumococcus Gram positive bacilli

B. anthracis B. diphtheriæ B. welchii B. œdematiens B. septicum B. tetani

B. botulinum Spirochæles of: Syphilis

Yaws Relapsing fever Weil's disease Vincent's infection

dapted from Farquharson¹⁵) gives a partial of the sensitive and non-sensitive organisms , t etermined by in vite > tests. This table shows hat, with the exception of the Gram negative meningococcus and gonococcus, penicillin acts only on Gram positive cocci, Gram positive bacilli, and upon certain spirochætal organisms. has little or no action on Gram negative bacilli, on Streptococcus facalis or upon the

acid-fast organisms of tuberculosis or leprosy.

It must also be remembered that even among the susceptible bacteria there is a wide variation in their sensitivity to penicillin and that certain strains of usually sensitive organisms may be highly resistant. It is necessary, therefore, when treating an infection with penicillin to know the nature of the infecting agent; and it is also highly desirable, if the therapy does not seem to be effective when dealing with what should be a sensitive bacterium, to determine whether or not the organism belongs to a resistant strain.

Another possibility is that an initially sensiorganism may acquire an enhanced resistance to the autibiotic. It is well known that such an increased resistance can be produced in vitro, 15 to 19 but this is not a common feature of organisms studied during the course of a clinical infection.20, 21

Even when dealing with a sensitive organism it is essential for the action of penicillin that it be brought into intimate contact with the pathogenic bacteria. If the organism is growing in blood clot or in dead or gangrenous tissue from which the blood supply is cut offas it may be in a deep wound or in a chronic osteomyelitis—then the administration of penicillin will have no effect. The need for adequate surgical removal of dead tissue from wounds and of dead sequestra from cases of osteomyelitis is just as great as it has ever been.

It has recently been announced22, 23 that there are at least four different kinds of penicillinknown in America as penicillin F, G, K and X-and it has been shown that not only is there a difference in the in vitro antibiotic activity of these various penicillins, but there is also a much greater difference in their ability to deal with infections in the living animal. This is most marked in the case of penicillin K whose activities against streptococcal and pneumococcal infection in mice and against experimental syphilitic infections in rabbits is no more than one-sixth to one-tenth of that of standard penicillin G.24 The reason for this is that penicillin K is destroyed in the body much more rapidly than the others,24 and as a result the administration of a given amount of it produces a far lower blood level of antibiotic activity than would the same amount of penicillin G. Because of changes in

^{*}Adapted from Farguharson 15.

the method of manufacture, there has been a gradual increase over the last few years in the K content of most of the commercial peni-Although successful attempts are now being made to limit the amount of penicillin K in these commercial products, this change has been so significant that the most recent communication from the American Committee on Medical Research has suggested substantial increase in the dose of penicillin prescribed for the treatment of syphilis.25 There would seem to be considerable justification for the recent suggestion of Eagle and Musschman24 that it would be desirable to assay the potency of penicillin preparations, not as is done now by in vitro tests on a standard-strain of staphylococcus, but by in vivo tests on specific infections in living animals. This would avoid the occurrence of difficulties such as those which have arisen because of the changing K content of commercial penicillin.

Again, although penicillin may be able to control the growth of an infective agent, it has no effect whatever upon the bacterial toxins which such an organism may have produced. The administration of the antibiotic in no way diminishes the need for the administration of adequate amounts of antitoxin in such conditions as diphtheria, tetanus or gas gangrene infections, nor does it relieve the physician of the responsibility of using any other appropriate treatment.

Administration and dosage. — The object of penicillin therapy is to expose the infecting organism, wherever it may be, to a concentration of the antibiotic sufficiently high to inhibit its growth, and to keep this up long enough to allow the natural defences of the body to deal with these devitalized bacteria. This may be accomplished by the local applications of penicillin solutions, creams, or powders to superficial lesions of the skin; by the use of pastilles. sprays, and nebulized solutions in the mouth. throat, and respiratory passages; by the irrigation of the depths of a wound with penicillin solutions; by the direct injection of penicillin into infected joints, abscesses, or empyema cavities, or into the intrathecal space by lumbar. cisternal or ventricular punctures. When dealing with a generalized infection such as a septicemia or syphilis, with a deep-seated condition such as a pneumonia, or with an extensive tissue infection such as-a widespread cellulitis, the

only effective method of administering penicillin is by intravenous or intramuscular injections.

Penicillin when given parenterally in watery solution is rapidly distributed throughout the body, reaching a maximum concentration in the blood - the level of which depends upon the size of the dose administered-almost immediately after a single intravenous injection and within fifteen to twenty minutes after an intramuscular injection.21 Although reaching all the ordinary tissues it does not pass readily into the thecal, pleural or articular spaces, and when dealing with infection in these sites local injection is necessary. The material is rapidly eliminated, largely through the kidneys, so that two hours after the administration of a single dose only traces remain in the blood, and three hours after injection it may not be possible to demonstrate its presence at all. This rapid absorption and elimination requires that, in order to establish and to maintain a satisfactory blood level by the use of watery solutions, penicillin must be administered no less often than once every three hours night and day, or must be given by continuous drip infusion.

Numerous attempts have been made to slow down the rate of absorption or to decrease the rate of elimination in an effort to decrease the number of injections necessary to maintain a satisfactory blood level.26 to 29 Probably the only practical method has been proposed by Romansky and Rittman, 30, 21, 32 who have shown that when 150,000 units of penicillin are injected intramuscularly in 1.5 c.c. of a beeswaxpeanut oil mixture a satisfactory penicillin level for dealing with normally sensitive organisms is maintained in the blood up to ten hours after injection. This has been con firmed by others including Nichols and Haunz3who found measurable levels of penicillin for as long as thirty hours after a single injection of 300,000 units in 1 c.c. of such a mixture. This is a very useful method for the administration of penicillin, particularly in cases of gonorrhœa where such a technique makes it possible to treat a patient with but one single intramuscular injection.

Attempts have also been made to use the oral route for the administration of penicillin. Only a very small portical such swallower cillin is absorbed because most of stroyed in the gastro-intestinal tract. when amounts four to five times as

and exudates and it doses are given by planted by other mcs possible to demonstrate substances. It, that the blood stream. Atturther, ase the degree of absorption by meous administration of various to neutralize the gastric acidity have conflicting results. The lack of certainty corption and the large amount of penicular necessary to produce adequate blood levels has prevented this form of therapy from being extensively used.

Clinical uses.—It obviously will be impossible to deal here in detail with the dosage schemes recommended for the treatment of all the infectious diseases which respond to penicillin therapy, but a few general remarks may be made in this connection.

- (a) Septicæmia due to staphylococci, streptococci, pncumococci and other sensitive organisms. -Such septicæmias are usually associated with some other pathological process such as an extensive cellulitis, carbuncles, abscesses, septic abortions, mastoiditis, osteomyelitis, and so on. Prior to the introduction of sulfonamide therapy the mortality in such patients was high With sulfonamide therapy nearly 60% have recovered, and since the introduction of penicillin treatment the recovery rate has jumped to 75% or more.3 This represents a remarkable improvement and is striking testimony to the efficacy of antibiotic therapy in such cases. Patients with such conditions should be treated by the intermittent or continuous intramuseular injection of 15,000 to 40,000 units of penicillin every three hours day The duration of this therapy will be determined by the severity of the condition and the promptness with which it responds to treatment. It should be continued for several days after the temperature has subsided to normal and all signs of infection have disappeared. Such therapy must be accompanied by any surgical measures necessary to drain collections of pus or to deal with any other focus of infection.
- (b) Subacute bacterial endocarditis.—The present status of antibiotic therapy in the treatment of this hitherto almost certainly fatal disease has been covered recently in detail by Rykert³⁶ and there is no need here to say more than that a proportion of these cases can be cured by penicillin when given in adequate dosage and over a sufficiently long period of time. Rykert

advocates the use of 200,000 units daily by intermittent or continuous intramuseular injection when dealing with an organism of ordinary sensitivity. If fever persists and blood cultures remain positive, then the size of the dose should be increased to 500,000 units daily. The therapy should be continued for at least twenty-eight days, and longer if the condition is of long-standing.

- (c) Pulmonary conditions. The pneumococcal and other pyogenic pneumonias respond well to penicillin therapy given in the regular routine dosage. Empyemas due to sensitive organisms should be treated by systemic administration of penicillin along with intrapleural injections of 25,000 to 50,000 units daily, repeated aspirations and, if necessary, by surgical Farquharson and his colleagues37 drainage. report excellent results in patients with acute lung abscesses. Olsen38 has advocated the use of nebulized penicillin in cases of bronchiectasis where the organisms are penicillin sensitive. In a limited scries of such patients, Dr. Pugsley of the Toronto General Hospitals has not succeeds d in obtaining the striking decrease in the yous of sputum noted by Olsen to result 1. Off 3 form of treatment.
- (d) Meningitis.—Although the meningocoecus is very sensitive to the action of penicillin, the fact that the systemic administration of the antibiotic gives negligible penicillin levels in the spinal fluid makes adequate sulfonamide therapy still the method of choice.

In pneumococcal, staphylococcal, and streptococcal meningitis, penicillin therapy has caused a marked improvement in the prognosis. The treatment should combine systemic administration of penicillin in dosage similar to that outlined above with adequate systemic sulfadiazine therapy and, in addition, intrathecal administration by the lumbar route of doses of 10,000 to 20,000 units of penicillin daily. A difficulty that may be encountered is the development of a spinal block which may require that the penicillin be given by cisternal or even ventricular puncture as advocated by Cairns et al.40

(e) Prophylactic use of penicillin.—The value of penicillin treatment in preventing rapid growth and spread of wound infections was well established during the last Great War. 11 in no way does away with adequate surgical débridement nor does its use relieve the physician of the necessity of administering tetanus

antitoxin and, when necessary, polyvalent gas gangrene antitoxin. It does, however, by controlling pyogenic infection, often make it possible to perform a successful early secondary suture, thus saving many weeks of hospitalization and achieving results far superior from the æsthetic and functional points of view to those formerly obtained. A practical scheme of dosage, which should be continued for four to five days after closure of the wound, in these cases is 15,000 to 20,000 units of penicilling given by intermittent intramuscular injection every three hours night and day.

The prophylactic use of penicillin is recommended when any surgical procedure, such as lobectomy for bronchiectasis, likely to be followed by serious postoperative infection is to be undertaken.⁴² Its use is advocated when dental extraction is to be done on patients with rheumatic heart disease in an attempt to minimize the risk of developing a subacute bacterial endocarditis.⁴³ The administration of penicillin has also been shown to be effective treatment in preventing or controlling infections as the result of agranulocytosis.^{44, 45, 46}

- (f) Gas gangrene and tetanus.—Although penicillin administration to cases of gas gangrene in no way replaces adequate surgery and treatment with antitoxin, it is nevertheless, a worthwhile addition to the treatment of this very serious condition. Reports on the use of penicillin in the treatment of cases of tetanus are few and conflicting. It should probably be administered in standard dosage but it should not be allowed to interfere with the giving of full doses of antitoxin and other necessary measures.
- (g) Gonorrhæa.—Penicillin is highly effective in the treatment of acute gonorrhæa. This applies as well to the fresh case as to the one which has been found to be sulfonamide resistant. The administration of six doses of 15,000 to 20,000 units each over a period of fifteen hours has resulted in 95% of cures, and many of the failures respond to a second similar course. Because such treatment may mask, but not eradicate, a simultaneous luctic infection, it is highly desirable that patients treated in this way should have serological tests for syphilis done at three-month intervals over the course of the next year.
- (h) Syphilis.—The penicillin treatment of syphilis has not yet been accurately assessed and it may be said to be still in the experi-

mental stage. A great deal of data has been accumulated using different schemes of dosage of penicillin alone and penicillin combined with mapharsen or bismuth, or both.25,50 There is no doubt that the treatment of sero-negative primary lesions with one of the accepted routines results in a high proportion of cures, but the percentage of relapses increases considerably when treatment is begun during the later stages of the disease. The advocated treatment varies from 60 injections of 20,000 units every three hours given over a period of eight days-total dose 1.200,000 units-to amounts four and onehalf times as high. The administration of 60 doses of 40,000 units each every three hourstotal dose 2,400,000 units-is advocated for the treatment of syphilis in pregnancy⁵¹ and the prevention of prenatal syphilis in the infant.52 Congenital syphilis has also been shown to benefit by treatment with penicillin.53 The results of penicillin treatment of neurosyphilis are more difficult to assess. Certainly the evidence would not seem to justify using it to the exclusion of the other standard methods of treatment.

(i) Other diseases.—There is evidence that penicillin therapy is helpful in the treatment of Weil's disease but it is not very convincing.⁵⁴ Given in the form of slowly dissolving pastilles of 1,000 units each, penicillin is an effective treatment for Vincent's infection in the mouth, and may have some value in the treatment of acute streptococcal pharyngitis. Systemic penicillin may be useful in the treatment of those cases of diphtheria in which there is considerable surrounding cellulitis but antitoxin must also always be given in full dosage. Penicillin is also used in many ways in the specialtics but there is no time to discuss these here.

Toxic reactions.—The administration of penicillin is never attended by any reactions as serious or disturbing as the agranulocytoses or the anurias that may result from sulfonamide therapy. It causes no disturbance whate liver or kidney nor does it interfere in a with the function of the bone marrow. H it does give rise to a number of reaction although not dangerous, may be very The degree of purification of the penicheing produced has largely done awas febrile reactions, chills and local were commonly associated with the nets. The most frequent reactions en

now are probably allergic in origin and resemble those seen in serum sickness. Such reactions may come on almost immediately but they usually make their appearance seven to fourteen days from the onset of therapy and they occur in about 5 to 7% of eases. They are characterized by generalized urticaria and itching and occasionally by myalgia, arthralgia and areas of angioneurotic ædema. These symptoms usually subside within four to five days and are rarely severe enough to make it necessary to stop the penicillin if the condition of the pament requires that it be continued. They can he controlled, in part at least, by the use of adrenalin or ephedrine and still more effectively by the new drug, benadryl. Similar reactions have been reported as having been produced by crystalline penicillin so that it is not certain whether these reactions are due to the antibiotic itself or to the presence of impurities. Other reactions such as vesicular and bullous dermatitis, severe asthma, and abdominal cramps with diarrhea, have been reported from time to time but these are comparatively rare.

STREPTOMYCIN

As penicillin acts only on Gram-positive organisms (with the exception of the gonocoecus and meningococcus) an intensive search has been made for an antibiotic that would be antagonistic in a similar way to Gram-negative baeteria. Two such substances—streptothricin and streptomycin-have been prepared by Waksman^{55, 56} from cultures of certain actinomycetes. Of the two, streptomycin, having the wider range of activity and certain other advantages, is the one that has been chosen for production in commercial quantities. Numerous observations on its clinical use have been reported^{57 to 62} and although it is not yet on the market it is likely that it will soon be available for general use.

Sclective action.—Streptomyein exerts, as do the other antibioties, its action only upon certain bacteria. In Table II a list of the organisms resistant to the action of penicillin is given, and it so happens that these penicillin resistant organisms are, by and large, sensitive to the inhibiting action of streptomyein. These include the Gram-negative bacilli, Streptococcus fæcalis, and the tubercle bacillus. Again, as is the case with penicillin, the fact that a certain organism

is sensitive to the action of streptomycin in the test tube is no guarantee that it will be adequately dealt with when growing in the living patient. This is exemplified in the case of undulant fever and in other conditions where the administration of large quantities of streptomycin apparently does not affect the course of the disease in any way. There is a wide range in the sensitivity of the susceptible organisms, B. aerogenes being very sensitive whereas most strains of B. pyocyaneus are very resistant. It would appear that sensitive organisms aequire a resistance to the action of streptomycin more readily than they do to penicillin. 1

Administration and dosage.—Streptomycin may be administered to patients by any of the methods described above for penicillin. For systemic therapy it is usually given intramuscularly or intravenously in doses of 125 mgm. (125,000 units) or more in 1 to 2 c.c. saline solution every three hours day and night. It is not absorbed at all when given by mouth nor does it penetrate the thecal or pleural spaces in appreciable amounts when given parenterally.

Clinical use.—Streptomycin will probably of value in the treatment of bacteræmias eaused by any of the sensitive organisms. In such cases it should be administered in doses of 125,000 to 250,000 units every three hours (1 to 2 grams daily). It has been shown to be very effective in the treatment of tularæmia, but it is of doubtful value in the treatment of undulant and typhoid fever. 60

It has also been shown to be effective in the treatment of many urinary tract infections, particularly those cansed by B. aerogenes and B. proteus. 60 The results are not always so satisfactory when the infecting organism is B. coli or pyocyaneus. The dose here should be 1,000,000 to 2,000,000 units daily and care should be taken to make sure that the urine is mildly alkaline and not acid in reaction. Good results have also been reported in Friedländer's pneumonia, in bronchiectasis associated with the presence of Gram-negative organisms63 and in meningitis caused by B. influenzæ. 60 Considerable work has been done concerning its use in experimental and clinical tuberculosis64 and. although it seems to have been effective when given by systemic and erosol therapy in a few cases of tuberculous laryngitiscs and tracheobronchial tuberculosis.64 it has been of questionable value in the treatment of other varieties of tuberculosis even when carried on for long periods of time.

Toxic reactions.—Streptomycin administration may at times give rise to a histamine-like reaction with flushing of the skin, probably due to the presence of impurities. Toxic erythemas and urticarial rashes are encountered and, in some cases, headache, nausea and vomiting. Prolonged administration of large amounts may give rise to temporary eighth nerve involvement with tinnitus and vertigo and occasional deafness.

SUMMARY

- 1. Antibiotics are therapeutic agents, recently developed to a practical degree, which have been found to be remarkably effective in the treatment of certain infectious diseases.
 - 2. They exert their action only upon certain specific organisms and it is therefore necessary that the nature of these organisms be known if the therapy is to be successful.
 - 3. They must be employed in such a way that the offending bacteria are exposed to their action in a sufficiently high concentration and over a sufficiently long period of time.
 - 4. They act by killing and inhibiting the growth of sensitive bacteria but they have no effect whatever on any toxins that such bacteria may have already produced.
- 5. The development of antibiotics has introduced a very important new principle into the realm of practical therapeutics, a principle that will undoubtedly result in the discovery of other similar substances even more powerful and useful than those which are now available.

REFERENCES

- 1. FLOREY, SIR H. W.: Brit. M. J., 2: 635, 1945.
- 2. FLEMING, SIR A.: Proc. Staff Meet. Mayo Clinic, 21: 65, 1946.
- 3. HERRELL, W. E.: Penicillin and Other Antibiotic Agents, W. B. Saunders Co., Philadelphia and London, 1945.
- KEEFER, C. S. AND ANDERSON, D. G.: Penicillin in the Treatment of Infections, Oxford University Press, New York, 1945.
- New York, 1940.

 5. WAKSMAN, S. A.: Microbial Antagonisms and Antibiotic Substances. The Commonwealth Fund. New York, 1945.

 6. Dubos, R. J.: J. Exper. Mcd., 70: 1, 1939.

 7. Idem: J. Exper. Mcd., 70: 11, 1939.

 8. Idem: Ann. Int. Med., 13: 2025, 1940.

 9. HOTCHKISS, R. D. AND DUBOS, R. J.: J. Biol. Chem., 136: 803, 1940.

 10. HOTCHKISS, R. D.: Advances in Enzymology, 4, 153, 1944.

- 1944.
 RAMMELKAMP, C. H.: War Med., 2: 830, 1942.
 FLEMING, A.: Brit. J. Exper. Path., 10: 226, 1929.
 CHAIN, E., FLOREY, H. W., GARDNER, A. D., HEATLEY, N. G., JENNINGS, M. A., ORP-EWING, J. AND SANDERS, A. G.: The Lancet, 2: 226, 1940.
 ARBAHAM. E. P., CHAIN, E., FLETCHER, C. M., GARDNER, A. D., HEATLEY, N. G., JENNINGS, M. A. AND FLOREY, H. W.: The Lancet, 2: 177, 1941.
 FARQUHARSON, R. F.: Canad. M. A. J., 53: 199, 1945.

- SCHMIDT, L. H. AND SESLER, C. L.: Proc. Soc. Exp. Biol. & Med., 52: 353, 1943.
 SPINE, W. W., FERRIS, V. AND VIVINO, J. J.: Proc. Soc. Exp. Biol. & Med., 55: 210, 1944.
 MCKEE, C. M. AND HOUGE, C. L.: Proc. Soc. Exp. Biol. & Med., 53: 33, 1943.
 RAMMELKAMP, C. H. AND MAXON, T.: Proc. Soc. Exp. Biol. & Med., 51: 386, 1942.
 BLOOMFIELD, A. L., KIRBY, W. M. M. AND ARMSTRONG, C. D.: J. Am. M. Ass., 126: 685, 1944.
 RAMMELKAMP, C. H. AND KIRBY, W. M. M.: Bull. N.Y. Acad. Med., 21: 656, 1945.
 Committee on Medical Research, O.S.R.D., Washington, and the Medical Research Council London, Chemistry of Penicillin, Science, 102: 627, 1945.
 EAGLE, H. AND MUSSELMAN, A.: Science, 103: 618, 1946.
 Committee on Medical Research, J. Am. M. Ass., 131: 271, 1946.
 BEYEE, K. H., WOODWARD, R., PETERS, L., VERWEY, W. F. AND MUTTIS, P. A.: Science, 100: 107, 1944.
 TRUMPER, M. AND HUTTER, A. M.: Science, 100: 432, 1944.
 TRUMPER, M. AND THOMPSON, G. J.: J. Am. M. Ass., 1

- 28. TRUMPER, M. AND HUTTER, A. M.: Science, 100: 432, 1944.

 29. TRUMPER, M. AND THOMPSON, G. J.: J. Am. M. Ass., 130: 627, 1946.

 30. ROMANSKY, M. J. AND RITTMAN, G. E.: Science, 100: -196, 1944.

 31. Idcm: Bull. U.S. Army M. Dept., (No. 81), 43, 1944.

 32. ROMANSKY, M. J., MURPHY, R. J. AND RITTMAN, G. E.: J. Am. M. Ass., 128: 404, 1945.

 33. NICHOLS, D. R. AND HAUNZ, E. A.: Proc. Staff Meet. Mayo Clinic, 20: 403, 1945.

 34. McDeimott, W., Bunn, P. A., Benoit, M., Dubois, R. And Reynolds, M. E.: Science, 103: 359, 1946.

 35. Idem: J. Clin. Invest., 25: 190, 1946.

 36. RYKERT, H. E.: Canad. M. A. J., 55: 543, 1946.

 37. FARQUHARSON, R. F., GREEY, P. AND TOWNSEND, S. R.: Canad. M. A. J., 53: 1, 1945.

 38. Olsen, A. M.: Proc. Staff Meet, Mayo Clinic, 20: 184, 1945.

 39. PUGSLEY, H. E.: Personal communication,

- 39. Pugsley, H. E.: Personal communication,
 40. Cairns, H., Duthie, E. S., Lewin, W. S. and Smith,
 H. V.: The Lancet, 1: 655, 1944.
 41. MacFarlane, J. A.: Bull. Acad. Med., Toronto, 19:
- MACFARLANE, J. A.: Bull. Acag. Mew., 10.000.
 93. 1946.
 WHITE, W. L., BUENETT, W. E., BAILEY, C. P., ROSEMUND, G. P., NORRIS, C. W., FAVORTE, G. O., SPAULDING, E. H., BONDI, A. J. AND FOWLER, R. H. J. Am. M. Ass., 126: 1016, 1944.
 GRAHAM, J. W.: Personal communication.
 DAMESCHEK, W. AND KNOWLTON, H. C.: Bull. New Eng. Mcd. Centre, 7: 142, 1945.
 BOLAND, E. W., HEADLEY, N. E. AND HENCH, P. S.: Proc. Staff Meet. Mayo Chinic, 21: 197, 1946.
 TYSON, M. C., VOSEL, P. AND ROSENTHAL, N.: Blood, 1: 53, 1946.
 JEFFREY, J. S. AND THOMSON, S.: Brit. J. Surg., 32: 159, 1944.

- 47. JEFFREY, J. S. AND THOMSON, S.: Brit. J. Surg., 32: 159, 1944.
 48. ALTEMETER, W. A.: J. Am. M. Ass., 130: 67. 1946.
 49. BUXTON, R. AND KUEMAN, R.: J. Am. M. Ass., 127: 26, 1945.
- Committee on Medical Research and the United States Public Health Service: J. Am. M. Ass., 131: 265,
- INGRAHAM, N. R., STOKES, J. H., BEERMAN, H., LENTZ, J. W. AND WAMMOCK, V. S.: J. Am. M. Ass., 130: 683, 1946.
- GOODWIN, M. S. AND MOORE, J. E.: J. Am. M. Ass., 130: 658, 1946.
 INORAHAM, N. R., STOKES, J. H., BEFRMAN, H., LENTZ, J. W., GYORGY, P. AND ROSE, E. K.: J. Am. M. Ass., 130: 694, 1946.
- 54. BULMER, E.: Brit. M. J., 1: 113, 1945.
- 55. Waltsman, S. A. and Woodbuff, H. B.: Proc Soc Exper. Biol. & Med., 49: 207, 1942.
- 56. SCHATZ, A., BUGIE, E. AND WAKSMAN, S. A. Proc Soc Exper. Biol. & Med., 55: 66, 1944.
- ZINTEL, H. A., FLIPPIN, H. F., NICHOLS, A. C., WILEY, M. M. AND RHOADS, J. E.: Am. J. Med. Sc., 210: 421, 1945.
- 58, ADCOCK, J. D. AND HETTIG, R. A.: Arch. Int. Med., 77: 179, 1946.
- HEILMAN, D. H., HEILMAN, F. R., HINSHAW, H. C., NICHOLS, D. R. AND HERRELL, W. E.; Am. J. M. Sc., 210: 576, 1945.
- Herrell, W. E. and Nichols, D. R.: Proc. Staff Meet. Mayo Clinic, 20: 449, 1945.
- 61. Keeren, C.: Streptomycin. Paper given at the meeting of the American College of Physicians, May, 1946.
- REIMANN, H. A., ELIAS, W. F. AND PRICE, A. H.: J. Am. M. Ass., 128: 175, 1945.
- 63. OLSEN, A. M.: Proc. Staff Meet. Mayo Clinic, 21: 53. 1946.
- 64. HINSHAW, H. C. AND FELDMAN, W. H.: N.Y. Academy of Sciences, January 19, 1946.
 65. Fig., F. A., Hinshaw, H. C. and Feldman, W. H.: Proc. Staff Meet. Mayo Clinic, 21: 127, 1946.

RÉSUMÉ

Les antibiotiques sont des agents thérapeutiques de découverte; ils agissent de façon remarquable dans eertaines infections. Cette action, toutefois, ne se manifeste que vis-à-vis de eertains organismes spécifiques. Il faut, par conséquent, bien connaître ces organismes avant de décider l'emploi de ces médica-Lorsque la décision sera prise, il s'agira d'administrer l'antibiotique à des concentrations suffisantes et pendant un temps suffisamment. prolongé. Le principe sur lequel s'appuie l'usage des antibiotiques permettra de nouvelles découvertes et probablement la mise en œuvre de produits beaucoup plus puissants. JEAN SAUCIER

LARYNGO-TRACHEO-BRONCHITIS (A statistical review of 549 cases)

E. A. Morgan, M.D. and D. E. S. Wishart, M.D.

Toronto, Ont.

THE disease which in the last decade has been termed, almost universally, laryngo-traeheobronchitis is one which is rarely seen in adult life. There are several sound reasons for this well-attested fact; the infant's larynx is peculiarly susceptible to reflex spasm, its structure is much less rigid and therefore more easily collapsed, and inflammatory ædema of the mucous membrane is much greater in relation to the diameter of the lumen than in the adult larynx and the airway is encroached upon to a greater degree. It is, however, not easy to explain the greater ineidence of simple laryngitis in ehildhood except on the basis of a lower degree of immunity to respiratory infections in early life.

The term laryngo-traeheo-bronchitis, now generally adopted, is at best a diagnosis of eonvenience to describe a group of eases presenting the same initial elinical pieture, but it is often inaccurate when applied to any individual ease in the group, Actually only 12% of the authors' series were proved by laryngoseopie examination, autopsy or at operation, to have any involvement of the trachea or bronchi.

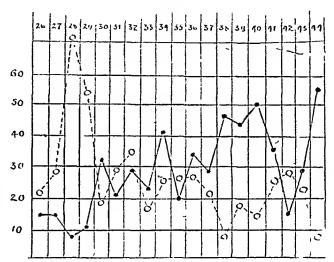
An analysis of 549 cases admitted to the Hospital for Sick Children from 1926 to 1944

and theread ar Seventy-seventh Annual Meeting of the with penien. Me 'ssociation, Section of Pædiatrics,

inclusive was undertaken with the hope that the data procured might throw some light on the ctiology, and by noting past errors in diagnosis and medical and surgical treatment standardize the future management of this distressing condi-The series does not include any ease of laryngeal diphtheria but does include cases of spasmodie croup whose condition was serious enough to require hospitalization.

In the last 19 years, 549 cases were admitted. Chart 1 shows in graphic form the number of admissions each year (solid line), and the mortality percentage (broken line).

CHART 1



There has been a steady increase in the yearly admissions from an average of 12 in the first four years to a peak of 55 in the last This cannot be explained by a corresponding increase in total medical admissions since these have increased only 50% in the same period. It is probable that the potential seriousness of the disease is now more generally recognized by the profesison.

As has been pointed out by other observers, the mortality rate is usually in inverse proportion to the total number of cases in any given year. For example, in 1928 only 8 ease is admitted and 75% died, whereas je Good and '40 when 46, 44 and 50 easy edländer's were admitted, the mortality ed with the 8.7, 18 and 14% and in the sms63 and in there were 55 cases with rning its use in S only 9.2%.

The sex incidence was berenlosis 14-S respect neumonia, c.g., 65% mayen eneep peak year of 1

Age incidence.—In the there a mortality rate pneumonia, c.g., 65% malen effect: rate was

2 years of age and only

estimating the prognosis. As will be shown later, the highest death rate is in the first few years of life.

Seasonal incidence.—This is essentially the same as for the common respiratory infections. Over 70% occur in the 6 months' period from November to April inclusive, the peak months being February and March.

BACTERIOLOGY

There seems to be no unanimity of opinion among recent observers as to the identity of the organism most commonly found by culture in this disease. Davies2 from eultures taken antemortem reports the relative frequency as S. hamolyticus, Staph. aureus and pneumococcus but in post-mortem cultures there was a marked preponderance of Staph. aureus; in fact all his fatal eases with one exception were due to this organism. McCready3 and Sinclair4 consider B. influenzæ the most important causative agent. Walsh⁵ and Matthew⁶ found Staph, aureus in most of their eases but Jackson reports 85% of their eases infected by S. hamolyticus. Neffson⁸ found the relative frequency to S. hæmolyticus, S. viridans, and Staph. aureus, the latter being relatively uncommon. In the more recent articles the possibility of virus-infection is discussed.3, 9, 10, 11

The diversity of findings is, no doubt, due to the fact that different organisms predominate in certain epidemies and in certain years. There is, too, a great variation in the methods of obtaining material for culture. Organisms reeovered from a simple throat, swab are often quite different from those grown from the site of the disease, during operation or at autopsy. In this study most of the baeteriological findings from 1926 to 1939 have been omitted for two reasons: the method of obtaining the material was by simple throat swab and the search was primarily to establish the presence or absence of Klebs-Loeffler bacillus. However, the cultures taken during this period during operation or at autopsy are recorded because of their greater Commencing in 1940, all material accuracy. was collected by the method described by Auger.12 The organisms recovered by this method are, in a high proportion of cases, identical with those isolated at operation and ive one a reliable picture of the bacterial flora at the site of the disease. During January and February, 1945, there was a sharp increase in the number of cases admitted—55 in all—and although these have not been included in the general clinical survey they have been included in the bacteriological records:

CHART 2

	Alone	Mortal- ity %	In combination	Mortal- 1ly %
Strept. H	53	28	34	-30
Staph. Aur	34	44	38	40
Pneumoc	29	27	18	17
Strept. Vir	13	15	9	44
B. Influen Mixture of	2	100	5	0
organisms	77			
No growth	20	• •	• •	

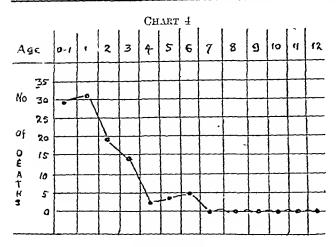
Chart 2 shows the relative frequency of the organisms isolated from 1940 to 1945 inclusive. The material was obtained by Auger suction or by culture directly from the site of the disease at operation or post mortem.

CHART 3

	Alone	Mortal- ity %	In combination	Mortal- ity %
Strept. H	28	50	18	50
Staph. Aur	26	58	24	50
Pneumococc	9	66	2	50
Strept. Vir	10	20	8	50
B. Influen Mixture of	1	100	••	• •
organisms	14	0	,	
No growth	13	0	• •	••

Chart 3 shows the frequency of organisms recovered in the entire series by direct cultures from the site of the disease at operation or postmortem and gives a slightly more accurate picture of the bacteriology than Chart 2. The relative frequency of the bacteria isolated is the same in both charts but the mortality figures for Staph, aureus and pneumococcus infections are higher in Chart 3. The number of instances where "no growth" or "a mixture of organisms" was recorded is of particular interest since it suggests virus infection. Although the mortality percentage of cases with combined infections was not as high as those with pure cultures, one combination viz. S. hamolyticus and Staph. aureus proved to be a serious one with a death rate of 60%.

As suggested before, the frequency of various organisms varied from year to year. In 1940 to 1941 S. hamolyticus predominated; in 1943 Staph. aureus, in 1944 pneumococcus and during January and February, 1945, epidemic nearly all the cultures were reported as mixed infection



HYPERPYREXIA

This was, in our experience, of serious prognostic importance. Of 42 cases, who had a temperature of 106° or over, 37 died—a mortality rate of almost 90%; of 38 cases with a temperature of between 105 and 106°, 14 or 40% died.

	•		$\cdot \cdot \cdot c$	HART	5			1
	TOTAL NO CASES	DIED.	Mogry %	% for 5 Yes	OPER ATIVE CASES	DIED	7275	for 5 YAS.
2G	14	3	21		•	l	100	
27	14	4	28		3-	3	100	
28	В	6	75	31.6	2	2	100	१ ४०
29	11	∕ G	54	\	5	4.	80	
30	32	ด	19)	4 ,	2	50	/
31	21	, 6	29	X . ,	3	3	100	
32	29.	1	34		5	0	a	
33	23	4	17	18	•	•	•	80
34	. 41.	10	-24	}	3	3	100	
35	20	4	26	/	•	. •	•	-
36	3'3	g	27_		2	2	,100	
37	28	6	21.		, 7	4	57-	
38	46	4	g	717	5 ′	1	20	63
39	44	8	18	1	10	6	60	
40	50	7	14	V	3	2	66	
41	36	g	25	<u> </u>	8	4	50	
42	15	4	27	V	4	0	٥.	
43	28	7	24	15	8	4	50	35
44	55	5	g	1	7	3	42	\
45	41	1	2.5	Y	14	0	-0	r

Chart 5 depicts the mortality rate for the years 1926 to 1944 inclusive and for the first two months of 1945. Two mortality rates are shown, that for all cases admitted in each year and that for the cases operated upon. The gradual reduction in the death rate is best shown in columns 4 and 8 where the cases have been grouped into five-year periods. The most striking reduction is in the cases operated upon from a high of 80% to a low of 35%. If one

were to eliminate from the statistics of the last 5 years those cases who were moribund on admission or those who died from a sudden aspiration of plugs before bronchoscopy was possible the mortality figures could be even further reduced.

SUMMARY

- 1. The case records of 549 children admitted to the Hospital for Sick Children from 1926 to 1944 have been analyzed and 41 cases occurring in January and February, 1945 have been included in part of the survey.
- 2. There has been a steady increase in the number of cases admitted, and the seriousness of the individual cases was in inverse proportion to the number admitted in any year.
- 3. The sex, age and seasonal incidence have been shown:
- 4. The relative frequency of bacteria isolated was S. hæmolyticus, Staph. aureus and pneumococcus. B. influenzæ was infrequently found.
- 5. There can be no doubt that many of the infections are primarily due to a virus. These are recognized by the lack of response to antibiotic drugs, failure to demonstrate pathogenic bacteria in the cultures, a normal leucocyte count or a leucopenia, and a fairly typical clinical course.
- 6. Pseudo-membranous inflammation was found most commonly in Staph. aureus infections; denudation of the mucosa in Staph. aureus and S. hæmolyticus-infections, seldom in virus infections.
- 7. Antibiotic drugs are of value in prophylaxis and should be exhibited in every case of simple spasmodic croup. If given early enough they will probably prevent the development of serious manifestations in the bacterial cases, but will have little restraining effect on the virus infections. They will prevent secondary infections and reduce the incidence of serious postoperative complications.
- 8. Trachcotomy is the operation of choice and should be performed early in the disease, but subsequent bronchoscopic suction must be frequently resorted to if lives are to be saved.
- 9. Intubation cannot be recommended as an operative procedure except as a temporary expedient to relieve obstruction.
- 10. The postoperative management is the most precarious phase of the treatment and requires experienced nurses and the constant attendance of a trained bronchoscopist.

- 11. The principal causes of death are failure to relieve obstruction, overwhelming toxemia, postoperative infection, pneumothorax and mediastinal emphysema.
- 12. Eighty-seven per cent of all deaths were in children under 4 years of age.
 - 13. Hyperpyrexia is a serious prognostic sign.

14. The mortality rate has been gradually reduced in the last 20 years.

15. If one can control serious complications by chemotherapy, and severe toxemia by early diagnosis and treatment, the only serious condition with which one has to contend is mechanical obstruction and this, with ideal facilities can be corrected in a large proportion of cases.

From the wards and laboratories of the Hospital for Sick Children, Toronto, with acknowledgment and thanks to the anæsthetic service and the Department of Pathology for help and criticism.

REFERENCES

- MORGAN, E. A.: Abt's System of Pædiat., 111: p. 957.
 DAVIES, J. A. V.: New-Lng. J. Med., 229: 197, 1943.
 MACCREADY, P. B.: Ann. Otol., Rhin. & Laryn., 53:

- 2. MACCREADY, P. B.: Ann. Otol., Rhin. & Laryn., 53: 65. 1944.

 4. SINCLAIR, S. E.: J. Am. M. Ass., 117: 170, 1941.

 5. WALSH, T. E.: Laryngoscope, 54: 87, 1944.

 6. MATHEWS, R. Y.: Med. J. Aust., 1: 34, 1930.

 7. JACKSON, C. L.: Med. Olin. N. Am., 22: 1881, 1938.

 8. NEFFSON, A. H. AND WISHIK, S. M.: J. Pædiat., 5: 617, 1934.

 9. ARDEN, F. AND DUHIG; J. V.: Med. J. Aust., 1: 145, 1944.

 10. JEFFREY, F. W.: Canad. M. A. J., 53: 562, 1945.

 11. BAUN, H. L.: Ann. Otol., Rhin. & Laryn., 52: 605, 1943.

 12. AUGER, W. J.: J. Pædiat., 15: 646, 1939.

 13. BUENETT, F. M. AND FOLEY, M.: Aust. J. Exp. Biol. & Med. Sc., 19: 235, 1941.

 14. OPTON, H. B. et al.: Arch. Otol., 33: 926, 1941.

 15. GITTINGS, T. R.: Ann. Otol., Rhin. & Laryn., 41: 422, 1932.

- 1932. 16. Richaeds, L.: Ann. Otol., Rhin. & Laryn., 42: 1014,
- 16. RICHAEDS, L.: Ann. Otol., Rana. & Larya., Sal. 1933.
 17. DAVISON, F. W.: Arch. Otol., 32: 321, 1940.
 18. BAUM, H. L.: Laryngoscope, 53: 371, 1943.
 19. NEFFSON, A. H.: Arch. Otol., 36: 773, 1942.
 20. SIMPSON, W. L.: Arch. Otol., 26: 411, 1937.
 21. JOHNSON, L. F.: Ann. Otol., Rhm. & Laryn., 53: 837, 1944.
- 22. Michels, M. W.: Arch. Otol., 29: 842, 1939. 23. IGLAUER, S.: Ann. Otol., Rhin. & Laryn., 53: 823, 1944. 24. Macklin, C. C.: Arch. Int. Med., 64: 914, 1939. Canad. M. A. J., 36: 414, 1937.

RÉSUMÉ

549 cas de laryngo-trachéo-bronchite furent étudiés pour arriver à la présente discussion. Le sexe, l'âge et les rapports chronologiques de la maladie sont notés. Les agents microbiens en cause ont été le S. hémolytique, le Staph. dor, et le pneumocoque; Le B. de l'influenza fut plus rare. Par ailleurs, il y a de bonnes raisons de croire que fréquemment l'agent causal doit être un virus. La formation de pseudo-membranes fut plus fréquente avec le Staph. doré; cependant, on observa la dénudation des muqueuses avec le Staph. doré également, mais aussi avec le S. hémolytique. Les antibiotiques sont très efficaces comme agents (prophylactiques sauf lorsque la maladie est causée par un virus. La trachéotomic et les aspirations bronchiques ont leurs indications précises. L'intubation ne sera qu'une procédure temporaire. Les soins post-opératoires demandent beaucoup de doigté et la collaboration fréquente du bronchoscopiste. Les principales causes de mort relevées ont été l'obstruction, la toxémie, l'infection post-opératoire, le pneumothorax et l'emphysème du médiastin. 87% des décès eurent lieu chez des enfants de moins de 1 ans. L'hyperthermie assombrit le pronostic. Depuis 20 ans le taux de mortalité a graduel-lement dimmué. Jean Saucier lement diminué.

THE "SHOCK THERAPIES" AT THE ONTARIO HOSPITAL, LONDON

J. J. Geoghegan, M.B., Ch.B., D.Psych. Director, Shock Therapy Division, Ontario Hospital, London, Ont.

INTRODUCTION

THE term "shock therapy" became popular in medical parlance following Sakel's report, in 1933, on the value of insulin therapy in the treatment of schizophrenia. His investigations showed that insulin, in doses large enough to produce hypoglycæmic shock and coma, was of considerable value in the treatment of schizophrenic patients. A few years later Meduna reported on the curative action of metrazol in the treatment of manic-depressive psychosis and schizophrenia. Metrazol, administered intravenously, induces an epileptiform convulsion or grand mal, followed by a transitory period of coma and mental confusion. In 1938 electroshock therapy, introduced by Bini and Cerletti, was added to the list of convulsive therapies. Although these two therapies are usually grouped under "convulsive therapy", electroshock is the one more commonly used.

The conservative attitude with which shock therapy has been regarded in the treatment of mental illness during the past few years, has been replaced in some centres by a more aggressive attitude, since the merits and dangers of the therapy have become better understood. Instead of occupying a position far down or last on the therapeutic list, it has, particularly in this hospital, been promoted to a very prominent position. It is the opinion from observations made at this centre, that shock therapy administered daily to the newly admitted patient with acute psychogenic delirium, commonly renders such patient free from the acute symptoms within three or four days. The necessity for prolonged continuous bath treatment, special nurses, gavage, etc., is thus eliminated entirely or to a great extent. This is particularly the case in the manie phase of maniedepressive psychosis, where the patient is often completely freed of all symptoms within a week, compared with months or longer in the preshock era: and in schizophrenic delirium, where the patient is very often relieved of his acute symptoms within a few days, thus rendering him more accessible to psychotherused in hypoglycemic doses, e.g., 10 to 50 or 100 units given each morning. Besides sedating the patient it also has a beneficial effect on his physical condition. Electroshock has been given frequently to patients in hypoglycemia and insulin coma, but under ordinary circumstances satisfactory results are obtained with barbiturates.

4. Benzedrine sulphate.—It has been observed that patients become resistant to electroshock when the therapy has been continuous over a prolonged period, until ultimately it is impossible to induce a convulsion. Benzedrine sulphate in 10 mgm. doses one hour before treatment is very effective in eliminating this difficulty.

PSYCHOSES ASSOCIATED WITH ORGANIC BRAIN CHANGES

The senium, per se, in the presence of mental disorder is not necessarily regarded as a contraindication to shock therapy. Special clinical aeumen is necessary in the selection of such cases for treatment, as the hazards undoubtedly inercase with ageing blood vessels. arterioselerosis, with or without hypertension, is common after the age of 60, but in the absence of memory defect, disorientation and other marked signs of organic brain disease, and in the presence of acute mental disorder, shock treatment should receive serious consideration.9 It is our opinion that a patient in the senile period, with a mental condition characterized by prolonged agitation or excitement, is in greater danger from his mental condition the would be from shock treatment. Our observations indicate that patients between 50 and 75 years of age, with depression or excitement, can be safely treated with electroshock if no other gross physical abnormality be present. The underlying organic condition is, of course, uninfluenced by shock therapy; any accompanying delusional system persists, but the affective component—excitement, agitation or depression—is very often dissipated and the patient rendered much more comfortable. The following case reports indicate the type of patient in this group benefiting by electrotherapy.

CASE 16

Mrs. J.M. (mentioned above). This patient was over 71 years old, with generalized arteriosclerosis and a blood pressure of 170/110. She completely recovered from a manic attack after several electroshocks.

CASE 17

Mrs. L.S., aged 65, diagnosis, psychosis with cerebral arteriosclerosis. She had generalized arteriosclerosis with a blood pressure of 170/96. She had persecutory delusions and was depressed and agitated. Since receiving electroshock she has been friendly, cheerful and co-operative.

These observations also apply to patients suffering from general paresis, the only other type of patient with organic brain disease treated with convulsive shock during the year, viz.:

CASE 18

Mrs. O.I.K., aged 47, date-of admission June 12, 1945. This patient showed symptoms of acute excitement suggesting, tentatively, a diagnosis of manic-depressive psychosis, manic phase. No physical abnormality was noted on examination. She received 4 electroshocks and recovered from her excitement. Several days after the institution of this therapy the routine C.S.F. report was received showing the typical paretic curve, which was confirmed. Careful physical and neurological examinations again showed no clinical evidence of organic disease. This patient left the hospital without any symptoms of excitement.

FOLLOW-UP PROCEDURE

When the patient is considered well enough to resume his activities in the community, the salient features of the illness and causal factors are again reviewed with him. As the patient will return to the same environment wherein his illness developed, besides preparing him to meet this situation in a healthy manner, he is instructed in the procedures to adopt should his mental symptoms return. The idea of returning, on an out-patient basis, for advice, electroshock or other treatment, is not at all He has, from real experience, distasteful. exploded the myths centring around mental institutions. Patient and relative are advised as to the Mental Health Centre nearest their home, and informed that the patient will be interviewed at intervals by members of the hospital staff. The patient is also advised as to the value of regularly contacting his family doctor, who has been notified of the patient's condition, treatment in hospital and the facilities available for post-hospital care. We are forced from wide experience, to stress as much as possible the importance of snitable aftercare in the prevention and earlier recognition of relapses.

PROPHYLACTIC ELECTROTHERAPY

Every psychiatric hospital is familiar with the patient who has recurrent attacks of affective mental disease, requiring periods of hospi. talization once or oftener each year. As already stated, electroshock and other therapies

rapidly restore the majority of these patients to good mental health but, within a short time, some are returned to hospital with a second or third attack of their mental disease. From the necessity of doing something more for this type of patient after leaving hospital, materialized what is termed at this clinic "prophylactic shock treatment". This form of preventive treatment, the author believes, was first suggested by Dr. G. H. Stevenson, Superintendent of this Hospital.' In August, 1944, before the shock service was operating, Dr. Stevenson advocated (1) that all suitable patients, with histories as described above, return to the hospital once a month for electroshock treatment and (2) that this plan be extended over a five year period. He was of the opinion that as electroshock quickly dissipates manic excitement or depression in the advanced or clinical state, it should act in a similar way in the subclinical state, or prevent altogether the return of mental symptoms, thus obviating a return to hospital. This plan was also extended to the relapsing patient with schizophrenic dis-A list of such patients was compiled from the hospital records, and this prophylactic procedure was explained to each one personally, if possible, or by letter. Relapsing patients then in hospital also were advised of this plan, and were encouraged, on leaving hospital, to return for monthly electrotherapy. It was difficult to persuade all patients to co-operate in this experimental procedure, as some were afraid of electrotherapy, others were without initiative and others still without insight.

When the patient reported for treatment, it was fully explained that prophylactic shock was not an absolute guarantee against future relapse, but an experiment in preventive medicine well worth trying. The most he could lose, economically, was 12 days per year for 5 years, whereas the gain might be complete freedom from mental symptoms. Furthermore, it was explained, regular visits to the clinic would enable the therapist to note early manifestations of illness, and allow of a more intensive form of shock therapy, e.g., 2 or more treatments per week. The import of this form of after-care for the patient with a tendency to relapse, can be appreciated by scrutinizing the data presented in Table IV. These facts were taken from the records of two patients on prophylactic treatment, and are very representative of the whole situation.

TABLE IV.
THE REASON WHY PROPHYLACTIC ELECTROTHERAPY
WAS INSTITUTED

1	Mrs. A.L.	ame Mrs. E.B.
Age. Diagnosis. No. of admissions	53 Man. dep. man.	Man. dep. man.
since 1st attack Total days in hospital	1941-1945 (5) 335	1943-1945 (5) 392

When the clinic commenced operations in November, 1944, 36 relapsing patients were invited to attend for prophylactic shock treatment. During the course of the year suitable patients were added to the list, and by the end of the year 46 patients were being regularly contacted by letter and social workers. Eleven women and five men attended regularly during the year and have remained well to date. We cannot claim, however, that they remained well because of monthly electroshocks or monthly discussion and advice. On the other hand, we can claim, from patients' own statements, that they feel well, have a sense of security and a definite increase in self-confidence as the months go by without relapse. Many are as keen as the therapist in following the experiment to the end, and state they have lost the old feeling of shame at coming to a mental hospital for treatment. We also believe from our one year's experience, that those who attended regularly, and are still attending, have complete insight into their conditions, and that their chances of continued good mental health are excellent, and that the opposite is the case of those who refused to help themselves. We hope that after a period of five years, sufficient data will have accumulated to accurately assess the value of this form of therapy. preliminary report is meanwhile in order and the figures for the year are reported in Table V.

TABLE V.

No. on prophylactic list	36	Remained well	Relapsed
No. attending regularly No. not attending	16 20	16 16	· <u>'</u>

A small number of first admissions (9) developed mild mental symptoms shortly after leaving hospital. All these patients attended for Out-Patient electrotherapy, and it was unnecessary to hospitalize any of them.

RESULTS

Table VI summarizes the results of shock therapies given at the clinic from November, 1944 to October, 1945.

TABLE VI.
A.—RECENT ADMISSIONS, CONVULSIVE SHOCK AND/OR INSULIN

Diagnosis	No. treated	Re- covered	Much im- proved	Im- proved	Unim- proved
Schizophrenia	114	47	22	14	31
Man. dep. psy	95	74	14	3	4
Inv. melaneholia.	20	12	3	2	4 3 1
Psychoneurosis	12	5	3 5	1	1
Paranoid state Psy. with psycho- pathic personal-	2				••
ity	6	5			
Undiagnosed psy Psy. with mental	5	2	1	1	1
deficiency	6	5		1	••
Totals	255	146	45	22	42

В.—Отне	R PA	TIENTS	TREATED		<u>.</u>
Long-standing mentally ill Senile psychoses par.	151	Electro	shoek and	/or	metrazol
type	1	"	u	"	u
Psy. with cerebral art.	1 2 2	• "	"	"	u
General pareties	$\bar{2}$	ш	"	"	"
Recent and long-stand-	_				
ing eases	27	Subcom	a insulin		
Attending O.P.D. for electrotherapy:					
(1) Prophylaetic	22	Electro	choek		
(1) Prophylaetic (2) Others	9	"			

	====
C.—Total number on the various forms of shock	
therapies during the year	469

Totals..... 214

Conclusion

A shock therapy division has been in operation at the Ontario Hospital, London, from November, 1944 to October, 1945. In this period 469 patients received shock therapy. Our observations have led to the following conclusions:

- 1. That a well equipped shock therapy unit is an important part of a mental hospital's treatment facilities.
- 2. That the duration of mental illness in many cases is greatly shortened by early shock therapy.
- 3. That many long-standing or chronic cases of mental illness are symptomatically improved by shock therapy.
- 4. That the dangers of shock therapy are minimal in properly scleeted cases and that many cases, complicated by hypertension, ad-

vanced years, arterial degeneration and even considerable heart disease, can receive shock therapy safely.

- 5. That electroshoek is, in most cases, the shock treatment of choice, reserving insulin only for those who do not respond to electroshock. Metrazol is indicated only in those cases who, for one reason or another, cannot readily attend the shock clinic.
- 6. Mental disease complicating eertain organic or toxic reactions may be symptomatically improved by shock therapy.
- 7. Curare, although recommended by some workers, has not proved of sufficient value in our hands to warrant its continued use, except in rare eases.
- 8. That the investigation of the value of prophylaetic shock treatment be continued on suitably selected cases.

I should like to express very sineere appreciation to the Superintendent of the Ontario Hospital, London, Dr. George H. Stevenson, for his constant interest and advice in the therapeutic program outlined in this report.

REFERENCES

- Report to Ontario Department of Health. December, 1944.
- 2. POLATIN, P., SPOTNITZ, H. AND WIESEL, B.: New York State J. Med., 40: 843, 1940.
- McGregor, J. S. and Sandison, R. A.: Brit. M. J., p. 310, September 7, 1940.
- 4. PROCTOL, L. D. AND EASTON, N. L.; Am. J. Psychiat., 99: No. 2, September, 1942.
- 5. GEOGHEGAN, J. J.: J. Am. M. Ass., 55: 1946.
- 6. BENNETT, A. E.: J. Am. M. Ass., 114: 322, 1940.
- 7. Idem: J. Nerv. Ment. Dis., 98: 23, 1943.
- 8. Report to Ontario Department of Health, March, 1945.
- 9. STRAKER, M.: J. Ment. Sc., 90: 780, 1944.

Résumé

Le présent artiele est basé sur l'observation de 469malades traités par les diverses eloc-thérapies depuis 1944. Ce mode thérapeutique permet, après un recul de 2 ans, d'affirmer les propositions suivantes:

La choe-thérapie constitue maintenant un aspect thérapeutique indispensable à tout tout hôpital psychiâtrique bien organisé. La durée de certaines maladies mentales est souvent notablement écourtée par les ehoes. Plusieurs états mentaux de longue durée sont eliniquement améliorés par cette thérapeutique. Les dangers de ee mode de traitement sont minimes et il est possible de l'appliquer aux eardio-rénaux si les eas sont bien ehoisis et étudiés. L'électro-choe est le traitement de ehoix; l'insulino-ehoe sera réservé aux malades résistants aux électro-choes ou à eertaines psychoses où cette thérapeutique est plus particulièrement indiquée, la sehizophrénie par exemple. Les réactions psychosiques dues à certaines infections ou intoxications bénéficieront des choes. Le curare ne sera qu'exceptionnellement utilisé comme adjuvant de la choe-thérapie. Les ehoes sont étudiés dans la prophylaxie de certains états mentaux. JEAN SAUCIER

SEBORRHŒIC DERMATITIS

Capt. Ivan Price, R.C.A.M.C.

Halifax, N.S.

SEBORRHŒIC dermatitis is one of the most commonly encountered dermatoses. It may vary from a mild type to one severe enough to be totally disabling. It may present as a simple scaling patch on chest or back, or be so bizarre in character as to be the unexplained factor of a constantly recurring impetigo of the scalp, or folliculitis of the beard.

It is accepted by most authorities today that seborrhœa is a necessary prerequisite to seborrhœic dermatitis. Seborrhæa, so named by Fuchs in 1840, has been aptly defined by Mac-Leod.1 "Seborrhæa, or flux sebacea, is an excessive output of sebum by the sebaceous glands, and is a functional disturbance rather than a disease." Sebaceous glands are large and numerous in the scalp, central area of the face, beard, sternal and interscapular areas, lower part of the sacral and pubic areas. It has long been thought that they are devoid of nerve supply. Recently, however, it has been shown that changes in their secretion occur with certain nervous lesions.3,4 Sebum is a true secretion containing fatty acids combined with higher alcohols, including cholesterol. Unna² believed that the sweat glands supplied small amounts of fat to the sebum.

Seborrhæa may occur prior to birth (vernix caseosa), during infancy (as oiliness of the face especially, or miliary acne), but is especially noted at the time of puberty. There are many factors which predispose to it. Increase in number and size of sebaceous glands under the influence of androgenic hormone, is probably the one of prime importance. Others are: heat and exercise (with hyperhidrosis), anxiety, alcohol, certain foods (excesses of carbohydrates and fats, pork, chocolate, nuts, certain sea foods). It has been noted too, that a persistently acid urine occurs with most cases of frank seborrhæa.

It is upon the fertile soil provided by sebum that the organisms responsible for seborrhæic dermatitis thrive. These are: (1) the Pityrosporum ovale (flask shaped bacillus of Unna, bottle bacillus of Sabouraud), which is actually a fungus of the family Cryptococcaceæ; (2) the microbacillus of Unna and Sabouraud (Bacillus

acnes of Gilchrist); (3) the Staphylococcus epidermidis albus of Welsh (the grey bacillus). It is now felt that the organism of most importance in the production of seborrhæic dermatitis is the Pityrosporum ovale.^{7, 8, 9}

The exact mechanism of production of the dermatitis has not been fully determined. has been shown that actually more of the Pityrospora may be cultured from the skin of normal scalps, than from those showing clinical seborrhæic dermatitis. It is noted that many cases of frank seborrhæic dermatitis are ushered in by an attack of superficial pyogenic infection which will clear only when the underlying seborrhœa is adequately treated. I feel that seborrhæic dermatitis is most probably a cutaneous expression of an allergic reaction to organisms, chiefly Pityrosporum ovale, found on the skin of seborrhæic individuals; and that the precipitating factor of such a dermatitis is often an attack, of a superficial pyogenic infection. The allergic hypothesis is not a new one, and has been suggested by Ravaut.

The most inclusive work on seborrhæic dermatitis has been done by Unna, 11 and reviewed by Elliott. 12 An excellent clinical description has been given by Darier. 13 The following types are taken, in the main, from that text.

- 1. Seborrhæic dermatitis of the scalp. This is most often seen as a dry scaling dermatitis (dandruff) associated with some itching, but in addition there may be erythema with serious oozing. Similar changes may occur in the eyebrows, and along the first of the cyclids. There is often a tendency for
- (naso-labial folds, corners cauricular folds) as well as t canals, to become involved.
- 2. Figurate seborrheic don't election are the prestareas, and the hair margins is a dry red papule or groaddition of fresh papules centrifugally, leaving a central greasy scale.
- 3. Pityriasiform seboil lesions are dry scaling paseen in pityriasis rosea, chack, abdomen, and dermatitis is symmen flexures and process.
- -4. Perifollie ' : is a subacute fc

on presternal and interscapular areas. It commonly occurs in subjects with hyperhidrosis.

- 5. Psoriasiform seborrheic dermatitis. This is a papular dermatitis involving, primarily, seborrheic areas. Clinically it is not distinguishable from true psoriasis.
- 6. Exfoliative seborrhæic dermatitis. In this type follicular papules coalesce until large areas of skin are involved and desquamate. It may occur in secondarily infected cases which are over-treated. Pringle described a special type of seborrhæic dermatitis of the face in which there occurred large numbers of miliary perifollicular papules. It is felt by some today that staphylococcal folliculitis of the beard is actually a secondarily infected seborrhæic dermatitis.

In the differential diagnosis one must mention the following: pityriasis rosea, tinea circinata, roseolar secondary syphilis, eczema marginatum, erythrasma, eczematized circumscript prurigo. Histologically, in even the mildest types of seborrhæie dermatitis one sees parakeratosis, acanthosis, spongiosis in the stratum mucosum; with ædema of the dermis, and perivascular infiltration. It is said (Civatte) that microscopically one can distinguish true psoriasis from psoriasiform seborrhæie dermatitis in that in the latter there is more spongiosis, and the spongiose areas are filled with mononuclear cells instead of polymorphonuclears, as is the case in true psoriasis.

TREATMENT

Treatment resolves itself in four ways: (1) prophylactic; (2) anti-infectious; (3) anti-seborrhæic; (4) anti-allergic.

1. As in many other conditions prophylaxis is most important, yet is often little recognized until the time when its usefulness has, to a degree, passed. Most important in prophylaxis is the liberal use of soap and water. Any mild soap is good, and should be used several times a day in those showing much seborrhea. those showing less seborrhea, or whose skins tend to become dry or irritated with frequent soap and water cleansings, a superfatted soap, or one of the newer wetting agent soaps may be The use of cleansing creams is usually contra-indicated in seborrhæic individuals. Care of the scalp is of the greatest importance. It should be cleansed with a mild shampoo several times weekly. At the earliest sign of flaking,

- anti-seborrhæic measures should be applied (vide infra). Attention to errors of diet, particularly overeating and overdrinking, investigation and correction of gross errors of metabolism, are of lesser importance. Prophylaxis is of most value during adolescence, and in situations where overcrowding exists (e.g. service institutions).
- 2. If a pyogenic infection (commonly caused by Staph, pyogenes or streptococci) has ushered in, or complicated, a seborrhæic dermatitis, it is necessary to treat this before coping with the seborrhæic dermatitis itself. If the infecting organism is penicillin-sensitive, penicillin eream, spray, or intramuscular penicillin is the treatment of choice. One must ascertain, of course, that the patient is not allergically hypersensitive to penicillin. If the organism is penicillin insensitive, a preparation of one of the newer drugs (e.g. streptomycin), or one of the older drugs (ammoniated mcrcury, brilliant green, D'Alibour's solution) may be used. drug in the treatment of an infected seborrhæie dermatitis, should almost never be used. Should such an oceasion arise however, use should be discontinued after five days. If the secondary infection has produced a weeping eezematous dermatitis, the best initial local therapy is continuous cold compresses. These may be saturated borie acid solution (not advised in infants because of toxic absorption), a solution of 1:10,000 potassium permanganate, 1:20 Burrow's solution, 1:500 silver nitrate.
- 3. Once the secondary infection has been controlled, anti-seborrhæic measures should be introduced. Locally, Unna and Winkler¹⁴ advocated use of the following drugs, in order of merit: sulphur, resorcin, chrysarobin, ichthyol, salicylic acid, pyrogallol, mercurials, tar. Various areas, it is often found, differ in their response to therapy. Scalps with short hair respond well to a combination of sulphur and salicylic acid (3% of each) in an ointment base (lanolin and petrolatum, eucerin, or a wetting agent base). On scalps with long hair a 70% alcoholic lotion containing resorcin, salicylic acid (1.6% of each) mercuric chloride (0.08%) and castor oil (1.2%) is best indicated. blondes the resorcin should be replaced with chloral hydrate). Seborrhæic dermatitis of the external auditory canal always presents a problem. The author uses a gauze strip soaked in a solution of 10% ichthyol in normal saline, and lightly packs it into the canal.

swelling of the wall has subsided the solution is changed to ichthyol (10%) in glycerin. The glabrous skin, if very oily, responds to sulphur (2%) and resorcin (0.5%) in calamine or neoealamine lotion. Drier skins respond to sulphur-(0.5 to 1%) in calamine or neocalamine linament. Some prefer,15 especially about the face, sulphur (1 to 2%) in one of the newer emulsion bases. In the articular folds a preparation15 which has proved efficacious is crude coal tar (0.2 to 0.5%) in a lanolin-unguentum zinc oxide base. Seborrhæic dermatitis of the eyelids may be treated with 2% yellow oxide of mereury, or the mild crude coal tar preparation above mentioned. Ultra violet therapy is of value in conjunction with other local treat. ment, and should be given as mild erythema doses three times weekly.

In the psoriasiform type, treatment as advocated by Goeckerman and modified by Paul O'Leary produces the best results. In those cases of seborrhæic dermatitis which have received other types of local therapy, and still fail to respond, superficial x-ray therapy is indicated. Factors recommended are 85 KV. 4 ma., no filtration, anode skin distance 10 inches. With these a dosage of 75r is administered every 5 to 7 days for 6 doses. amount may be repeated in 6 months. No area of skin should receive more than 1,200r. Care. especially about the centre of the face, should be taken in respect to exit dose and back-In the general treatment, various food factors (vide supra) should be explained. to the patient, and a conscientious attempt made to correct any dietary errors. Endocrine therapy, in the form of estrogenie hormone has been tried with varying success. If used, some eare should be exercised, as severe benigh bleeding has occurred.15 Vitamin B complex is recommended, and many feel that its important factor is pyridoxine hydrochloride. Wright, Samitz and Brown¹⁷ suggest that pyridoxine is the important therapeutie anti-seborrhæie factor in injections of crude liver extract. They suggest use of vitamin B6 in daily doses of 25 to 100 mgm. Many of the British school advise alkalinization of the urine.

4. A field of therapy as yet little explored is the use of suspensions or extracts of the causative organisms (notably Pityrosporum ovale) in an attempt to desensitize the patient.

Sufficient work has not yet been completed in this field to warrant further comment.

SUMMARY

- 1. Seborrhæã is considered a prerequisite to seborrhæic dermatitis.
- 2. Various endoerine, food and emotional factors predispose to seborrhæa.
- 3. Causative organisms of seborrhæic dermatitis are three in number, the most important being Pityrosporum ovale.
- 4. A probable allergie factor in etiology is stressed.
- 5. Clinical types, in the main those of Darier. are listed, and the dermo-histology is discussed.
- 6. Treatment stresses prophylaxis. Various types of local and general therapy are listed.
- 7. The idea of adjunct treatment by desensitization is suggested.

REFERENCES

- MACLEOD, J. M. H.: Brit. Encycl. Med. Pract., 1st ed., 11: 56, 1939.
 UNNA, P. G.: Brit. J. Dermat., 6: 257, 1894.
 NEXMAND, P. H.: Acta Dermat.-Venereol., 25: 275.

- NEXMAND, P. H.: Acta Dermat.-Venereol., 25: 275. 1944.
 DOUPE, J. AND SHARP, M. E.: J. Neurol. & Psychiat., 6: 133, 1943.
 RONY, H. R. AND ZAKON, S. J.: Arch. Dermat. & Syph., 48: 601, 1943.
 BARBER AND SEMON: Brit. M. J., 2: 245, 1918.
 MACLEOD, J. M. H.: Brit. J. Dermat., 42: 549, 1930.
 DOWLING, G. B.: Brit. J. Dermat., 42: 562, 1930.
 MOORE, M., KILE, R. L., ENGMAN, M. F. JR. AND ENGMAN, M. F.: Arch. Dermat. & Syph., 33: 457, 1936.
 MACKEE, G. M., LEWIS, G. M., SPENCE, M. J. AND

- 1936.
 10. MACKEE, G. M., LEWIS, G. M., SPENCE, M. J. AND HOPPER, M. E.: J. Invest. Dermat., 1: 131, 1938.
 11. UNNA, P. G.: J. Cutan. Dis., p. 449, 1887.
 12. ELLIOTT: New York Med. J., 53: 1891.
 13. DARIER, J.: Precie de Dermatologie, Masson et Cie, Paris, p. 90, 1922.
 14. AHLSWEDE, E.: Practical Treatment of Skin Diseases, Paul B. Hoeber, Inc., New York, p. 314, 1932.
 15. WRONG, N. M.: Personal communication.
 16. ANDREWS, G. C., BRAESTEUP, C. B., AND HEISEL, E. B.: Arch. Dermat. & Syph., 50: 355, 1944.
 17. WEIGHT, C. S., SAMITZ, M. H. AND BROWN, H.: Arch. Dermat. & Syph., 47: 651, 1943.

RÉSUMÉ

Pas de dermatose séborrhéique sans séborrhée. L'excès de sécrétion de sébum paraît influencé par certains facteurs endocriniens, par l'alimentation et par les émotions. Trois micro-organismes peuvent canser la dermatite séborrhéique, mais de ceux-ci, il faut surtout retenir le Pityrosporum ovale. Par ailleurs on ne peut ignorer certains facteurs allergiques dans la pathogenie de cette dermatose. Les livers aspects cliniques de la maladie sont décrit et les tableaux histologiques sont résumés. Le traitement sera avant tout prophylactique. Plusieurs modes thérapeutiques locaux et généraux sont indiqués et l'on mentionne l'intérêt qu'il y a de tenter simultanément des essais de désensibilisation. JEAN SAUCIER

It is the tradition of our ealling that the poorest and humblest has just as great a claim on our services as the highest and most affluent. The measure of their need is the measure of our help. Thus it was that Sir Frederick Treves, when his Sovereign, King Edward VII, thanked him for his life saving attentions, was able to reply with pride: "Sir, you have had as much eare and skill in your illness as the humb t of yo iects". -Sir A. Webb-Johnston, The

in the recent conflict. For example, I clearly recall asking our hospital anæsthetist for a report after we had been a few weeks in Sieily; and that his breakdown of 416 general anæsthetie administrations was simply: 16 ethers, and 400 pentothals. But we must recall that we were sealed down to war equipment, having no gas anæsthesia apparatus; and also the fact that most of our wound eases did not require relaxing depths of anæsthesia. Thus, in well equipped hospitals here at home, perhaps Dr. Knight's dietum eoneerning pentothal employment is justifiable.

3. Don't allow any part of a pentothal injection to be deposited peri-vascularly or intraarterially. Solutions of this drug in ordinary concentrations cause a very extreme (often irreversible) arteriospasm when injected either into or around an artery. Many cases of gangrene of the fingers or hand, resulting sometimes in amputation as high as the elbow, have been reported due to this misadventure.

The following precautions are recommended:

(a) Avoid, so far as is practical, the use of veins in the antecubital area, where arteries may easily be entered in error. (b) Always pause after the first few minims have been injected; look for peri-vaseular swelling at the needle point; and ask the patient if he has any pain in the hand or fingers. (c) Keep the hand (or foot) beyond the point of injection fully exposed and in good light. Look repeatedly for blanching of the fingers (or toes). (d) When swelling occurs around the needle point, (indicating peri-venous infiltration) it has been recommended that the site be abandoned at onee, and that prompt injection be given of approximately an equal volume of 1% procaine HCl (novocaine) into the infiltration. By this means it is hoped that vaso-pressor sympathetic nerve fibres may be blocked; thus overcoming the threatened arteriospasm and local tissue ischemia which might end in a nasty slonghing ulceration. If a peri-vascular infiltration should attain considerable size, multiple incisions with evacuation and drainage are advisable; this to be undertaken as soon as the patient is anæsthetized. (e) If blanching of a pertinent skin area should occur, many suggestions for first aid have been advanced; but no specific immediate therapeutic measure has been established to my knowledge. Among the measures advocated are: copious peri-arterial injection of 1% procaine HCl in the region of the original pentothal injection; re-peated injectional blocking of the brachial plexus on same side; subsequent blocking of the stellate ganglion; loose absorbent cotton-wool and heat to the affected member, in a dependent position; use of a vasculator; and even heparin anti-coagulant treatment.

I fortunately have had no first-hand experience from which to judge the value of treatment measures in such a mishap.

4. Don't commence a pentothal administration without making sure that all your safety devices are right beside you. These include:
(a) A suitable airway. I like to see any one-of our interns with a naso-pharyngeal airway

pinned on his chest, and a rubber Waters-Guedel oro-pharyngeal airway in his poeket when he' approaches a patient, bearing a syringeful of pentothal solution in his hand. The patient under pentothal needs an artificial airway. The nasal type is better, and is tolerated under. lighter levels of anæsthesia; also it is suitable for dental extractions and similar surgery if the added precaution is taken of placing a handful of loose gauze in the back of the mouth and oropharynx. (b) An oxygen apparatus. Usually it is one of the many types of gas machines which is employed for this purpose. But some type of apparatus which can be used to give manually propelled (bag pressure) artificial respiration with oxygen should always be at hand. It may not be required once in several thousand eases, but if it is needed it must be right beside you. Hence it must always be beside you. (c) Since pentothal anæsthesia is general anæsthesia, most of my remarks under the heading "Inhalation anæsthesia" will apply to pentothal anæsthesia, and need not be twice mentioned.

C. Inhalation anæsthesia.—Airways have already been mentioned briefly in connection with pentothal anæsthesia. But let me say that every patient under general anæsthesia deserves an artificial airway. Airways should be atraumatic, made of rubber; they should have a generous lumen; and they should be long enough to extend well beyond the base of the tongue. Both oral (Waters-Guedel) and nasal (Magill) types, in various sizes should be in plenteous supply in every operating room. I often find it advantageous to use both an oral and a nasal airway at the same time. When inserting either the oral or the nasal airway, the tongue should be pulled fully forward, using a tongue foreeps, so that the lower open end positively rests beyond the base of the tongue, which it then supports. I much prefer a light Allis forceps for tongue retraction; and, incidentally, after once being used on a patient it is elipped to his gown or head-wrap where it remains handy until he has regained full reflex activity. Such foreeps have a string tied to one handle as an indication that they should be returned from wards to the operating room daily.

Both oral and nasal airways should be generously lubricated before insertion. Ordinary vaseline is quite snitable. The nasal tube has the distinct advantage that it is tolerated under a much lighter plane of anæsthesia than the oral This applies both in induction and in recovery. In the case of an edentulous patient, however, there is little, if any, advantage.-

Endotracheal intubation is a procedure that every anæsthetist must master. To the unskilled, I recommend the autopsy room as offering splendid facilities for learning the laryngoscopic appearance and positions of the landmarks in the mouth, pharynx, and larynx. Then I advise practising on edentulous etherized patients during recovery, after the operation is completed. Later try patients with good teeth during recovery. Aim to make yourself a master of the direct laryngoscope, and fully able to intubate even under the most unfavourable condi-You will not practise anæsthesia long before you will thus have saved a life or two; and you will be able to enjoy the advantages which such a method of anæsthesia certainly offers in many operative procedures.

I would advise that we all be possessed of both the straight blade type (in two or three sizes, e.g., the Guedel) and the curved type (Macintosh) of self-illuminating, direct laryngoscopes. Each has its advantages. Both should be ready.

As regards intratracheal tubes for anæsthesia, the following observations obtain:

(a) The tube should be pliable but not easily eollapsible and should have an open bevelled end. (b) It should always be generously lubricated (vaselined) before insertion. (c) The tube selected for any patient should have the greatest diameter (largest lumen) which will pass freely through the glottis. (d) A thin rubber inflatable cuff (Waters) near the lower end of the catheter will ensure air-tightness, and will prevent the aspiration of foreign matter into the trachea. Packing the pharynx around the intratracheal tube has a similar, though less positive effect. (e) In orotracheal intuba-tion, a soft metal (copper wire) introducing stylet, eurved anteriorly in its distal inch or two inches, adds very definitely to ease of control.

Two distinct types of endotracheal catheters are in general use: the semi-rigid catheter, for direct orotracheal intubation; and the curved rubber (Magill) catheter which is suitable for both nasotracheal and orotracheal intubation. Both types have their places in anæsthetics practice, but because we are here considering safety factors only, I urge that we all master via the mouth, a semi-rigid, good-sized, cathe- briefly some of my impressions concerning ter: and be able, on urgent demand, to coax or tease it through even a glottis which is in tense spasm, or through and beyond a collapsed portion of the trachea. Such a manœuvre has been undoubtedly life-saving at least seven

times in my personal experience. And it may be demanded again at any time.

Intravenous fluids.—(a) Whole blood transfusion should be anticipated and made ready for long operations where wide tissue dissections are necessary, and in cases wherein blood loss may be a serious danger. For example, it is good practice to administer blood routinely in stomach or bowel resections, and particularly in abdomino-perineal sections. mastectomy is another good example. we anæsthetists are becoming more and more blood transfusionists, we have been warned that, except in dire emergency, we must pay heed to the Rh factor of both the donor's and the recipient's bloods.

- (b) Blood plasma, either dried or in solution, should be constantly on hand both as an emergency substitute for blood from a safety standpoint, as well as for the advantages it may have in certain conditions: for example, in shock it may overcome hæmoconcentration; in extensive surface burns it may replace lost blood proteins; and in highly concentrated form it may combat lung ædema.
- (c) Normal salinc-dextrose solutions for intravenous administration must be in generous supply and ready for immediate use. They can he used in emergency to replace temporarily a blood volume loss in unexpected hæmorrhage. But perhaps their greatest usefulness is in forestalling the severe collapse in blood pressure, which typically accompanies many shock-producing surgical procedures, or which so often occurs after prolonged surgery and anæsthesia. I believe intravenous saline-dextrose should be given in the case of every operation which will probably last, or has lasted, beyond forty-five minutes in time; as well as for certain shorter procedures which are generally recognized as shock-producing. For long or serious operations, I am sure the happiest anæsthetist is the one who has an intravenous drip running, and his patient intubated. He is then certainly in a very masterful position.

Vasopressor drugs have already been briefly mentioned in connection with spinal analgesia. And therefore permit me only to state here pressor drugs.

Their ase by hypodermic or intranascular the and seems unor so by the intrarec : injection is verbe considered scientific. venous route

may is a clar to a failing blood pressure Early and a designated the every becomes ring or celastic that them alone ake positive steps to improve a and need by the rate asme blood . " diminstration of We have Charles and amed The me me and chiledinic in Land to by pure y 1 . . . 9200 12 1 112, 2 fibrillation which on he intal Perhaps there fore, those of us who are took of eyelopropane should restrict ourselves in the use of pressor drugs to neo-synephrme and methodrine We must be cautions when administering pressor drugs intravenously to avoid producing a dangerously high temporary blood pressure. dangerously high temporary description is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is being administred. The effect especially in aged and arteriosclerotic patients is a certain degree a curare-like effect rights are always ade
representation of the effect especially in aged and arteriosclerotic patients are always ade
representation of the effect especially in aged and arteriosclerotic patients are always ade
representation of the effect especially in aged and arteriosclerotic patients are always ade
representation of the effect especially are always ade
representation quate, we should have amyl nitrite and nitroglycerine close at hand.

Curare.-I cannot resist the urge to place curare (Intocostrin, Squibb) among the safety agents of the modern anæsthetist's arma-Thanks to Harold Griffith' we mentarium. now have for anæsthetists a relatively safe agent which will produce within two minutes complete muscular relaxation for a short period, and which can be safely repeated. So now we can enjoy lighter levels of anæsthesia, or the use of less potent agents, and yet when the surgeon needs complete, utter relaxation, we can give it to him promptly. This must be considered safer and more expedient than forcing a difficult, resistant patient with dangerous agents into dangerous depths of anæsthesia. I have been thrilled repeatedly by the spectacular and dependable effects of this drug; and thus far thrilled also by the prompt and apparently complete disappearance of its effects. Just the same I never use it without having a free airway and an oxygen bag-pressure apparatus connected up: nor without an amponle of prostigmine ready for intravenous injection in case I should ever feel I might • ad a specific autidote (2 e.c. ampoule prostig-. 2000. intravenous dose 1 to 2 e.e.).

rom the standpoint of safety, it should also he stated that the troublesome, and sometimes. serious phenomenon of incomplete laryngospasm, causing respiratory embarrassment, can be temporarily overcome by the usual or somewhat modified doses of curare.

Curare in effective relaxing doses (for adults 50 to 80 mgm., i.e., 2.5 to 4 e.e. of intocostrin) will cause complete abdominal relaxation and "quiet" for 15 or 20 minutes, and rarely with any important respiratory embarrassment. An individual overdose will produce complete paralysis of the intercostal muscles (corresponding to 4th plane of 3rd stage of general amesthesia); and it may go further to induce complete muscular paralysis of the diaphragm resulting in cessation of all respiratory movements. In such an event proper manual artincial respiration via the breathing bag will keep the patient's general condition in status quo until the curare effect begins to wear off and active respirations return. We are warned to greatly reduce our curare dosage where ether is being administered. It seems that ether itself rightas to a certain degree a curare-like effect upon the anie paresis of all respiratory muscles would complete "id by relatively small amounts of

be produce. anæsı... measure to the anæsthetist esthesia. -- arcely be over-esticurare,

Suction as a safety riefly in conner operating has a value which can set me say that er -- mesmated. Suction is a must in ever raumatic, room. The anæsthetist during the deserves an room. The anæsthetist, during general anas thesia, should have beside him both a mouth suction handle and a lubricated small rubber catheter with connector. The former is used regularly to keep the mouth and pharynx clear of any material which might enter the trachea, and the latter is used to clear the lumen of airways and endotracheal tubes, and also to perform a "toilet" of the lower trachea and main lower bronchi, both-whenever coarse rhonchi are heard, and at the close of every endotracheally administered anæsthetic, preferably just as the tube is to be removed. To avoid too forceful suction, which might easily injure the mueosa at the tip of the catheter, a simple mercury safety valve can be installed to limit the negative pressure to the desired level.

D. Respiratory inadequacy and respiratory arrest.—Until only a few years ago failing respiration under anæsthesia was dealt with simply by the withdrawal of the anæsthetic agent; and respiratory arrest called for the surgeon to drop his instruments and undertake artificial respiration by rhythmic chest compression, while the anæsthetist administered, or shouted for, hypodermic injections of camphorin-oil, strychnine, or eaffein—perhaps all three.

Today we feel that unduly shallow or slow respirations usually need only the mechanical augmentation which can be easily supplied by rhythmie pressure on the breathing bag if the airway is clear. For example, the patient in the fourth plane of third stage anæsthesia actually requires the assistance of about two good full lung expansions every minute, and ean thus be earried along smoothly and with relative safety for a considerable period. And the patient who has a good pulse, but whose respiratory movements, either by aecident or by design, have ceased entirely is now recognized as being in fourth stage anæsthesia, and he can be adequately supported while in this deep stage by the simple method called suitably by Guedel "controlled respiration".5

E. Cardiac arrest.—While failing eirculation has been dealt with already, actual cardiac arrest is quite a different matter and is usually irreversible. Guedel⁶ says, "Death is due to complete cardiac anoxia". Macintosh⁷ says, "Animal experiments suggest that after a cessation of beating there is increased irritability and conductivity of the heart, lasting about 1½ minutes". No doubt irritability must then diminish and completely disappear very rapidly.

The generally advocated emergency measures are:

(1) Steep Trendelenburg position. (2) Full rhythmic inflation of the lungs with oxygen, supplemented by manual chest compression for deflation. This mechanism in itself will keep up a certain amount of blood flow through the lungs and heart, and perhaps also through the coronary vessels. (3) Cardiac puncture. Using a hollow needle, the heart muscle is punctured, preferably the auricle. The puncture itself may provide the stimulus necessary to instigate muscle contractions, usually at first fibrillating in character. At any rate, the needle is withdrawn. (4) Cardiac massage by the surgeon through an upper abdominal incision may succeed in keeping the coronary circulation in motion. (5) Injection into the cavity of the left ventricle of 5 to 10 minims of adrenaline (1:1,000), or other similar drug, may succeed, via the coronary circulation, in stimulating the heart muscle.

We should remember that anoxia of brain tissue lasting more than a very few minutes (some say 8 minutes maximum) produces an irreversible cell degeneration. Therefore in the mishap of cardiac arrest we must institute any or all of the above measures immediately. We must have ready a suitable needle for cardiac

puncture sterilized and kept in a sealed test

Post-anæsthesia Care

A. On the table.—The anæsthetist should take steps to revive the patient as far as he can. He should suction out the mouth thoroughly, and also the trachea if indicated. He should ensure that no state of depression or collapse exists which he can promptly combat. He should leave a suitable artificial airway in situ as long as the patient will tolerate it. An Allis forceps, a "kidney" basin, a towel and gauze sponges should be placed beside the patient's face. The continuous intravenous drip apparatus, if being used, should be checked and made ready for moving the patient, splinting the arm, etc. If the patient has been requiring oxygen, then a suitable oxygen apparatus for transport should be set up. He should then write any special orders to be carried out at once on return to -the ward.

Finally, when he is assured that the patient is in good condition to be moved, he should go through a formal hand-over of the responsibility for the patient to the transport nurse. He should make sure that she understands how to "hold a jaw", use a tongue forceps, watch breathing, etc. And he should pass to her his written instructions, if any, for immediate ward care. Then in the ward the transport nurse goes through a similar formal transfer of responsibility and instructions to the ward nurse.

What I fear most in the busy practice of anæsthetics is that period, which can be so dangerous, between the time the anæsthetist last sees the patient in the operating room, and the first arrival of a house doctor in the patient's ward to earry out whatever is ordered or what he considers is indicated. We as anæsthetists must do all in our power to anticipate and bridge over this dangerous hiatus. Certainly a recovery section is the very best answer.

B. During recovery on the ward.—The unconscious or semi-unconscious post-anasthesia patient positively requires the constant, undivided attention of a trained or student nurse, who must be in a position to summon immediate additional help at any moment. Until the return of the patient's reflexes and consciousness, such nurses must carefully watch and record

ds particularly the follow s pulse colour vomiting and Incidentally we will do the we persist in the old disser in e i fully qualified it one nas mminometer ~11ti utre carns drip of fluid or of act and control oxygen 11 11 at. 1

sain I such diffies er i la dette tive must ir artificial reso 1 t e radiont n bed and m 11 11 may come when the 151 11 I have never been 1 1 . . . so much as when a recently a fire tell one that she nod do not give artificial respiration and nt near reals saved a woman's life

Ward interns must be impressed a nation important responsibility in treatment visiting covery from anæsthesia

GENERAL CONCLUSIONS

I feel that frequent promptings are not ted to keep us anæsthetists acutely alert to all the safety measures, practices, and routines which should properly concern us.

One good way of keeping this subject freshly before us is to include in our annual anæstheties teaching of student nurses one lecture on safety.

The interests and responsibilities of the modern anæsthetist place him in an important and respected position among his confrères. He is primarily, of course, an anæsthetics expert. he is likely the recognized hospital pneumatologist and perhaps the blood transfusion supervisor; he may be considered the hospital physiologist, and is often an important research worker. But apart from any of these, he should be safety adviser to the staff and hospital, and also a constant, co-operative, active consultant on the surgical team throughout the hospitalization of every "anæsthetics" patient.

REFERENCES

5. Guedie, A. E. Anasthesiology, 1: 13, 1944. 6. Idem: Inhalation Anæsthesia, p 75

INDUSTRIAL HEALTH PROBLEMS ENCOUNTERED IN THE WAR*

J. G. Cunningham, M.B.

Toronto, Ont.

RECENT experience emphasizes that with the incentive of war, the productive capacity of the individual is realized in terms of physical and mental health. The British Munition Workers Committee in World War I demonstrated that sickness and accidents rose and output fell with unfavourable conditions of work, particularly with excessive hours of labour. In 250,000 workers Gafafer.1 United States Public Health raise, found for sickness of over eight days' duration in 1942, a male case rate of 106.1 per thousand workers exposed, 16% greater than the werage from 1933 to 1942 and the highest of any The female rate was 168.4 for all eauses and 14% in excess of the average. Among the increases were for males, pneumonia 83%, bronthitis 44%, diarrhea and enteritis 38%, and for temales, diseases of the organs of locontion except joints 85%, pneumonia 81%; and neurasthenia 41%. Many other studies telify to the rise in sickness rates in wartime. Deerioral. O longing and compensatory influences extend beyond the factory.

In a British study of certified sickness² covering 20,000 women in industry there was a total sickness absence of 7.8% of total time, at least double the peace time rate. Married women suffered 48% more cases of siekness and 65% more lost time than single women. This was eommon to all ages but was highest in the age group 20 to 30 and applied to accidents as well, whether at home or at work. This experience was considered to be related to fatigue associated with work at the factory and at home, difficulties in transportation and other surrounding conditions. There is no suggestion that the married women were of inferior physique. Nervous disorders were second torespiratory conditions, being directly responsible for 17.5% of total sickness absence, instead of the usual 6 to 10%.

ACCIDENTS

It has been established that aeeident frequency is influenced by such environmental con-

HORTON, J. W. WOODBRIDGE, P. D. AND CONNELL, K.: J. Am. M. Ass., 113: 740, 1939.
 EVANS, F. The Lancet, 6279, p. 15, 1944.

KNIGHT, R. T.: Address delivered to Western Cana-dian Anaesthetists. Manitoba Division-of Canadian Anæsthetists Society, Winnipeg, March 15, 1946.

i. Griffith, H. R. Canad. M. A. J., 50: 144, 1944.

MACINTOSH AND PRATT. Essentials of General Ances-thesia, p 298.

^{*} Read at the Seventy seventh Annual Meeting of the Canadian Medical Association, Section of Industrial Medicine, Banff, Alberta, June 12, 1946.

ditions as atmospheric temperature, lighting and speed of operation. About 75% of accidents whether in the factory, at home or on the road are sustained by 25% of the exposed population and in this group are those designated as accident prone, estimated at 4% by the Connecticut Bureau of Vehicles. Their record does not improve with age. They are repeaters who should be employed in less hazardous work. They are not necessarily less efficient in other directions. Some progress is being made in the development of tests for recognizing them among applicants for employment. Tests even for defects in the special senses, e.g. lack of depth perception, are not widely applied. workers first entering industry suffer high accident rates. The report of the British Factory Medical Inspector in 1937 pointed out that boys and girls under 18 years of age in a group of 65 factories, in the first six months of employment sustained accidents to the extent of 50% of the group; in the second six months 23% were affected and after two years employment only 3%. Workers not used to factory life or changing from one job to another showed only a temporary increase in accidents. Both groups contributed to the temporary rise in accident experience in the war.

Up to 1943 in the United States in manufacturing industry there was an overall increase in the average of disabling injuries per million hours worked from 19.1 to 21.3 The increase in Ontario was roughly comparable. Since then the trend has been down. In Great Britain the rate rose for men over 18 years of age from 37 per thousand in 1939 to 53 in 1943 with a decline thereafter.

There is a positive correlation between lost time from minor and major accidents and between cases of minor accident and sickness. It is shown that those with more accidents are more likely to report with sickness also. Gross physical defect is not rated as a major cause of accident (3 to 6%) except where the special senses are involved but collaboration between the medical and safety departments of the individual plant is necessary to bring about more studies of accident experience with an epidemiological approach.

PERSONAL HEALTH

The sudden influx of new workers to industry required also the simplification of process, so far as this could be carried out. Just before

the war, Turner⁵ found more sickness in women on repetitive conveyor work compared with those doing the same job on individual machines, and considered that this was due to the fixed pace rather than to speed of operation. He recommended some selection of workers to reduce monotony.

The employment of handicapped persons was mainly satisfactory. Fulton⁶ reports from careful recording that while compensable injuries were increased, complaints of ill-health at the factory dispensary and total sickness absence were not increased in this group. It was rather among those who constitute a problem for the personnel and safety departments as well as for the medical department, representing in his case around 30% of the plant population, that the accidents, sickness and poor efficiency at work occurred.

These considerations have done much to focus the attention of employers on suitable placement at work and introduction to the job, emphasizing what the handicapped worker can do rather than the jobs from which he should be excluded. The war veteran is benefiting from this approach.

Mass administration of "cold" vaccines and of vitamin preparations were the subject of frequent inquiry from industry, in recognition of the loss of production from ill health. The American Medical Association, through its Council on Industrial Health, issued statements advising against their uncontrolled use in industry.^{7, 8}

Overcrowding was present in some industries. Its influence may have been reflected in upper respiratory infections but not in the adult tuberculosis death rate in Canada which in 1939 was 43.7 and in 1944 was 39.3 per one hundred thousand. This is more remarkable when it is recalled that the industrial population sustains a large proportion of middle-aged tuberculosis and that in Great Britain in the last war this death rate in women fifteen to twenty-four years of age was doubled. The death rate for tuberculosis in Germany doubled between 1939 and 1942.

During the war much reliance has been pluced on the "current" supervision of health which an industrial medical service can give. Many who would not have been employed everyther the war could not have continued the war could not have continued the without this supervision. At the 1943 the National Health Surve

And a mest and at employees in manufacturing ratisti in Carilla were receiving some degree This entire supervision by plant physicians. This s directed to suitable placement at work, retracomplaints of all health, correcting condream work, assisting in the rehabilitation of Langured employees earing for aecidents and weading information on health, but usually excluding the medical care of sick persons, who were reterred to the family physician. service was too largely confined to large war factories, partly for lack of personnel but mainly because the practice had not been widely accepted by employers in smaller factories. There is evidence of increasing interest in this group. This interest needs to be stimulated.

OCCUPATIONAL DISEASES

Engineering control of occupational hazards including methods for determining the degree of exposure of workmen constantly improves. To fix the maximum allowable exposure to any substance under industrial conditions involves extensive toxicity experiments. The engineer undertakes, through the control of dust and fumes, to meet these standards where they exist but safety demands in addition that the physician be enabled to detect early indications of poisoning before disability ensues due to mechanical failure of other preventive measures. Permissible levels for concentrations of substances like lead and arsenie in blood and urine have been worked out and used in control. Some investigators prefer to rely rather upon early evidence of biological changes due to industrial exposures, for example, the presence of basophilie stippling of red blood cells due to lead or the direct indican reaction in urine of those with T.N T. exposure. Much work remains to be done on this aspect of the control of occupational diseases, and from this standpoint reference will be made to some of the substances encountered during the war as they affect the hæmopoietic. hepatie, and respiratory systems.

Hamopoietic system.— Exposure to radium emanation and to fine dust particles from radioactive paints used for instrument dials was closely supervised. A set of instructions and aquent inspection instituted early in the war Ana Tized local ventilation, protective clothing, 5. Guerell, A. E. place and disposal of waste, limitation. Inhalation

MACINTOSH AND PRAM of paint available for use at those, p. 298.

ultra-violet lamp to detect contamination of the skin or elothing, physical examination including blood smears every three months, as well as the use of the Geiger-Mueller counter for evidence of storage in the tissue. Latterly, breath testing for alpha radiation has been carried out. On analysis of the reports of examinations of workers, conducted by plant physicians there appeared a few instances of employees with a temporary slight leukopenia with no significant alteration in the differential count. These white cell counts returned to normal shortly except in two or three instances where return to normal was delayed. In an oceasional single examination the lymphocyte count was higher without a leukopenia. In one instance the lymphocyteleucocyte ratio was sustained at about 50-50 and the breath test was within normal limits. In three cases this ratio was about 50-50 on application for employment. Browning10 refers to the presence of a leukopenia with a relative lymphocytosis in dial painters, which is interpreted as being the result of an initial stimulation of the reticulo-endothelial system and not considered to be associated with the damage to bone marrow characteristic of the late effects of storage of radioactive materials. In some exposures even a reversal of the leucocyte-lymphocyte ratio was observed. Its value for the supervision of exposed workers requires further assessment.

The use of benzol increased, e.g., in lining bullet-proof gasoline tanks with rubber, because toluol was required for the manufacture of trinitrotoluene. Later, compounds of petroleum origin were used for this purpose. Regular examination noting a leucopenia with relative lymphocytosis as an early indication for reducing exposure has been valuable here in the control of this hazard, even though Goldwater¹¹ reports a controlled study of workmen exposed, in which this finding was uncommon. He cites the most frequent early abnormalities as anemia, macrocytosis and thrombocytopenia. Benzol produces an aplastic anemia. The bone marrow may be aplastic or hyperplastic.

Browning¹⁰ reported in a group of workers exposed to pure xylol 54.5% with some leucopenia and 38% with a relative lymphocytosis.

Dioxan or diethylene oxide used as a solvent for resins, oils and waxes presents no change in hæmoglobin or red cell count but an increase in polymorphonuclear leucocytes with small continued exposure, and liver necrosis with deaths from uramia under heavy exposure.12

Hepatic system.—As far as is known there was one death in Canada from toxic jaundice due to trinitrotoluene and one from aplastic anæmia probably due to this substance. In fact, these seem to be the only two deaths from the manufacture of war chemicals and explosives and from shell filling. McConnell and Flinn13 have just reported on twenty-two deaths from T.N.T. in the United States in this war. Eight of these had jaundice and marked liver necrosis: 13 had aplastic anemia and one presented evidence of both conditions. These cases may be compared with 475 deaths in 71/2 months in the United States in the first World War. The authors remark that the pathological changes in the fatal cases of aplastic anæmia appear be separate and independent of toxic jaundice. Liver destruction may or may not be present. In two deaths in seven cases reported by Evans,14 one showing subacute liver necrosis had recovered from jaundice but died with a blood picture of aplastic anæmia and hyperplastic bone marrow, while the other with acute liver necrosis had jaundice, a nearly normal blood picture, and hyperplastic bone marrow.

The Chief Inspector of Factories in Great Britain¹⁵ reported that in 1944 there were due to trinitrotoluene, 36 cases with cyanosis and dyspnæa, 11 eases of toxie jaundice, one of whom died and six cases of toxic anemia, five of whom died. Stewart et al.16 early in exposure found hemoglobin and red cell counts reduced and the reticulocyte count increased, more particularly soon after exposure ceased. They - suggested that the sedimentation rate, the reticulocyte count and the direct indican reaction in urine be further investigated for use in the control of the hazard from trinitrotoluene. Alison Hamilton¹⁷ observed a risc in the large mononuclear leucocyte count in those exposed to T.N.T. before illness ensued and suggested its use to differentiate gastric symptoms due to this substance from those due to other causes among workers removed from exposure. It is not a specific response and has been noted in those exposed to aniline, benzene, and tetrachlorethane.

As liver poisons, the chlorinated hydrocarbons are important. Those with higher chlorine content which are solid at room temperature, when heated or in solution produce so-called chloraene, and are encountered in the insulation and stripping of cables and in making electrical condensers. The icteric index, direct van den Bergh and bromsulphophthalein tests'indicate liver damage in hospitalized cases but the results of such tests in those still at work do not appear to have been reported. Greenburg¹⁸ suggests that those who develop chloracne should be removed from exposure as a precaution against liver damage. The action of this group does not seem to be characterized by significant changes in the blood picture at any stage, although again Browning reports a relative lymphocytosis of 45% or over with a leucopenia in 16 of 42 workmen exposed to earbon tetraehloride. In four of these there was a reversal of the leucocytelymphocyte ratio. Carbon tetrachloride is widely used as a solvent for grease and as a fire extinguisher. It produces liver and later kidney damage. There were a number of instances where small groups of men suffered daily from nausea and vomiting until this occupational cause was recognized and one case where anuria developed with recovery.

Trichlorethylene is one of the least toxic of the chlorinated hydrocarbons and is used as a metal degreaser. There were two groups of cases of narcosis without demonstrable aftereffects when the manual control of degreasing tanks failed. The British Inspector reports delayed action of trichlorethylene, where some hours after heavy exposure, coma and death ensued. Minor changes in the blood picture have been reported with this exposure. There is evidence of liver damage with heavy doses in animals but it is considered to be much less toxic than earbon tetrachloride.

Tetrachlorethane which was a source of many cases of toxic jaundice and death in the last war does not appear to have been used in this war. In early exposure a rise in large mononuclear leucocytes and a total white cell count up to 15,000 per cubic millimetre of blood has been observed, as being useful for control of the hazard. The liver damage produced is the basis for the symptoms and signs in later stages.

What relation exists, if any, between the hemopoietic effects of some of these substances and liver damage is not clear. Kitzmiller and Kehoe²⁰ consider that evidence of macrocytic anemia warrants liver function inquiry since exposure may be producing exposure to affect the eryt

a number of eases of lung fibrosis, frequently associated with pneumothorax, sometimes bilateral.28 Reports from Germany in 1941, described what appears to be the same clinical condition in workmen exposed to finely divided aluminum oxide.29 Work is proceeding to determine whether this condition is due to compounds of silicon or aluminum or to one of the many impurities present in bauxite in small amounts.

Recently removed from the secret list, reference is made to BAL (British Anti-Lewisite) in its relation to metal poisoning.30 Apparently, the "pyruvate oxidase enzyme system" is affected by arsenic compounds producing a block in carbohydrate metabolism. It is pointed out that BAL has a greater affinity for arsenic than for the tissue cells so that not only is its use a preventive but to some extent its action is reversible. It represents a method of detoxifying but may be itself toxic. Used in the case of exposure to lewisite (mustard gas) when tissue damage has occurred without necrosis up to 30 minutes after exposure, the inflammation subsides. It has therefore been demonstrated that pathological changes can be produced, directly associated with interference in a cell enzyme system. The substance injected in animals prevents pulmonary lesions after the inhalation of lewisite, cadmium, and zinc fumes and prevents systemic effects of mercury. However, with eadmium compounds it forms substances which cause serious renal damage.31

INDUSTRY AND MEDICINE

During the war period the position of industrial medicine has been clarified and consolidated to a considerable degree. Industrial physicians may be part-time for one, or full-time for a group of small plants or for one large plant and most practising physicians have some contact with the wage-earning population. Integrated with other aspects of the maintenance of personnel in industry, medicine extends beyond the prevention or control of disease to a positive effort to apply all medical measures which will contribute to good physical and mental health and so to the well-being and satisfaction of the employee in his work. This presupposes relationships inside and outside the factory which in no way disturb the patient-physician relationship but rather supplement it and are capable of improving the public relations of the profession. The organization of medical services

in industry has advanced in respect to the suitable placement of handicapped persons during the war and since, in the detection and correction of maladjustment at work, in the more systematic control of occupational diseases and in the application of the efforts of official and voluntary health agencies, for example, in the discriminating use of mass chest x-ray surveys. Wassermann tests and general health information.

The Industrial Health Council of the American Medical Association has been very active throughout the war in the orientation of this work in the field of medicine. A Committee of the British Medical Association in 1943 reported on the subject and there have been issued two reports by the Royal College of Physicians.32 covering the scope of industrial medicine and its integration with general practice.

REFERENCES

- 1. GAFAFER, W. M.: Pub. Health Report, 58: 1250, 1943.
- A study of certified sickness absence among women in industry, Indust. Hith. Res. Bd. Rep. No. 86, H.M. Stationery Office, 1945.
- 3. Industrial injuries in 1943, Monthly Labour Review,-58: 242. 1944.
- 4. The personal factor in accidents, Indust. Hith. Res. Bd. Emerg. Rep. No. 3, H.M. Stationery Office, 1942.
- 5. TURNER, G. H.: Canad. J. Pub. Health, 34: 68, 1943.

- 10. Browning, E.: J. Indust. Hyg.

 1943.

 11. Goldwater, L.: J. Lab. & Clin. Med., 26: 957, 1941.

 12. Dioxan, Occupation and Health Supplement, 1939, International Labour Office.

 13. McConnell, W. J. and Flinn, R. H.: J. Indust. Hyg. & Toxicol., 28: 76, 1946.

 14. Evans, R. M.: The Lancet, 2: 552, 1941.

 15. Annual Report of the Chief Inspector of Factories for the year 1944. H.M. Stationery Office, London, 1945.

 16. Stewart, A., Witts, L. J., Higgins, G. and O'Brien, J. R. P.: Brit. J. Indust. Med., 2: 74, 1945.

 17. Hamilton, A. M.: Brit. J. Indust. Med., 2: 74, 1946.

 18. Greenburg, L., Mayers, M. R. and Smith, A. R.: J. Indust. Hyg. & Toxicol., 21: 29, 1939.

 19. Farmenter, D. C.: J. Indust. Hyg., 5: 159, 1923.

 20. Kitzmiller, K. V. and Kehoe, R. A.: Ohio State Med. J., 40: 838, 1944.

 21. Bulmer, F. M. R., Rothwell, H. E. and Frankish, E. R.: Canad. Pub. Health J.. 29: 19, 1938.

 22. Goss, A. E.: J. Indust. Hyg. & Toxicol., 26: 208, 1944.

 23. Neal, P. A., Schneiter, R. and Caminita, B. H.: J. Am. M. Ass., 119: 1074, 1942.

 24. Castleden, L. I. M. and Hamilton-Paterson, J. L.: Brit. M. J., 2: 478, 1942.

 25. Machle, W. and Largent, E. J.: J. Indust. Hyg. & Toxicol., 25: 112, 1943.

 26. Vanordstrand, H. S., Hughes, R., Denardi, J. M. and Carmody, M. G.: J. Am. M. Ass., 129: 1084, 1945.

 27. Rubenstein, A. D., Tabershaw, I. R. and Daniels, J.: J. Am. M. Ass., 129: 659, 1945.
- RUBENSTEIN, A. D., TABERSHAW, I. R. AND DANIELS, J.: J. Am. M. Ass., 129: 659, 1945.
 Personal communication from Dr. C. G. Shaver. December 28, 1943. A report on this condition was presented by Dr. C. G. Shaver and Dr. A. R. Riddell to the Ontario Laennec Society, October 24, 1946. 1946.

- 1946.
 Goralewski, G.: Archiv. fur Gewerbepathologie und Gewerbehygiene, 9: 676, 1939.
 Peters, R. A. Stocken, L. A. and Thompson, R. H. S.: Nature, 156: 616, 1945.
 Waters. L. L. and Stock, C.: Seience, 102: 601, 1945.
 Second interim report of the Social and Preventive Committee of the Royal College of Physicians of London, January, 1945.

· Résumé

Revue générale des divers problèmes sanitaires de l'industrie en temps de guerre. Appréciation statistique de la fréquence des accidents, de la santé individuelle des employés,—selon l'âge et le sexe, analyse des maladies dûes au travail particulier des employés et causées par les divers contacts et les diverses inhalations de toxíques. Discussion de l'image hématologique et des radiographies. Aperçu sur les mesnres prophylactiques. Clarification de la position de la médecine à l'égard de l'industrie et suggestions intéressantes à propos de l'amélioration du présent état de choses,—pourtant infiniment supérieur à celui de la première Grande Guerre. L'effort présent tend à intégrer la médecine industrielle dans la domaine de la médecine courante.

CHRONIC PROBLEMS IN INDUSTRIAL SURGERY*

W. N. Kemp, B.A., M.D.

Vancouver, B.C.

INJURIES TO THE HAND

HAND injuries constitute one of the most frequent and most commonly disabling types of industrial injury. Couch has admirably and adequately dealt with the general surgery of trauma to the hands. I shall mention only two of the most commonly disabling events that happen to a working man's hands: ædema and thermal burns.

After an injury, particularly a thermal burn, the hand always swells from reactionary edema. As we all know quite well this swelling is caused by the presence in the tissues and joints of plasma which, ultimately—if not removed—acts as a "liquid glue", rendering the joints of the fingers and hands immobile. By far the greatest number of cases of partial and permanent disability in workmen subjected to injuries of the hand are due to this one factor alone. The burned area heals, or is skingrafted, or the fracture becomes knitted, but the permanent disability caused by the extravasated plasma remains.

In one year alone 3.75% of all industrial accidents in this province were due to thermal burns and, of these, 282 involved the hands; 547 or 44.7% involved the upper extremity. A great many are permanently disabled.

Probably the most important therapeutic principle in the treatment of thermal burns of the hands and forearms is early elevation to promote gravitational drainage of edema for the reasons described above. This principle has been emphasized many times in ward rounds and elsewhere by A. H. McIndoe.² The further treatment of burns of the hands, as for burns elsewhere, has been well summarized by Flemming³ in the following "clinical pegs":

1. Decide whether the burn is light or severe. If in doubt treat as severe, rendering adequate and appropriate general treatment first

propriate general treatment first.

2. Local treatment depends upon the nature of the burn and a consideration of outside factors such as nursing and transportation.

3. Prevent dehydration and ensure sleep.
4. After the initial dressings which followed the primary cleansing of the burns have been left in place for three to seven days, the use of saline baths is indicated.

5. Watch the diet and see that the patient has adequate intake of essential proteins.

6. Watch the hæmoglobin and keep a record on patient's chart; give whole blood transfinsions when indicated.

7. Skin graft at the first prospect of success.

In passing, one would stress this last dictum as of especial application to industrial surgery in Canada.

INJURIES TO THE ELBOW

Under this head I will only briefly mention two common injuries of the elbow: epicondylitis and fracture of the head of the radius. In the former the persistence of symptoms usually defics all treatment, time being the only remedy available. The best treatment for the latter is early excision, as suggested by Watson-Jones.⁴

INJURIES TO THE SHOULDER

It is my intention to discuss only one type of shoulder injury, partial or complete tear of the "rotator cuff". In this I have followed almost verbatim the opinions of Moseley' whose recent monograph on Shoulder Lesions should be read by all who are doing industrial surgery.

Tear of the rotator cuff.—This term is applied to the musculotendinous envelope formed by the supraspinatus, infraspinatus and teres minor acting as external rotators by means of their insertion into the greater tuberosity of the humerus on the one side, and the subscapularis, an internal rotator inserted into the lesser tuberosity of the other.

Ruptures of the rotator cuff vary in degree from a tear of a few fibres to tears involving the full thickness of the complete cuff and capsule. The terms partial and complete

^{*}Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Industrial Medicine, Banff, Alberta, June 12, 1946.

rupture are used by Codman in relation to the supraspinatus tendon. Moseley restricts the term "eomplete" to tears involving the full thickness of the tendon and capsule. Partial ruptures are considered as lesions only of lesser degree. Ruptures, whether partial or complete, usually occur near the insertion of the tendons into the respective tuberosities of the humerus.

A tear of the rotator euff seldom occurs before the fifth decade and usually in the sixth decade of life. Males are more frequently affected and more often on the right side. The typical clinical picture is that of a middle-aged patient who, after a lifting strain or a fall, feels a "snap" in his shoulder accompanied by severe pain and inability to abduct his arm. He may continue to work with restricted movement or he may quit. Six to twelve hours later the pain is most severe and he is unable to sleep that night without sedation.

Examination shows that the shoulder is held in adduction and slightly higher than the normal side. Any attempt at movement, particularly abduction, eauses acute pain and muscular spasm. In mild cases abduction to 70° may be possible without pain and then, as the greater tuberosity passes under the coraco-acromial ligament, severe pain is felt which subsides at 110° to return at the same point as adduction from the vertical occurs. During this movement one usually notes the "jog and wince" described by Codman. Rotation of the arm is prevented by spasm. Extreme tenderness is found at the insertion of the deltoid. X-ray only shows that the humeral head is riding high in the glenoid fossa.

In moderately severe eases, if the shoulder is not injected with processine after the method of Leriehe, the muscles go into spasm and the head of the humerus remains high in the glenoid eavity with the arm maintained in a position of adduction. Gradually the pain lessens but the shoulder becomes stiff. The degree of stiffness varies with the severity of the rupture and the length of time before movement is started.

Treatment.—Moscley advances the following criteria for the surgical repair of the rupture:
(1) elinical features indicating severe injury;
(2) x-ray negative for fracture; (3) marked weakness in maintaining abduction after procaine injection.

In the treatment of recent partial ruptures the principle of movement is to be recommended. This is carried out in the relaxed muscle position, i.e., with the trunk flexed forward at the hips and the arm hanging downwards. Procaine injections, diathermy and massage are also employed. The average time loss, according to Mosley, is 10 to 21 days.

In the treatment of old partial ruptures the principle of movement is also to be recommended as described above for treatment of recent partial tears. Here the average time loss is about three months.

Recent complete ruptures should be repaired surgically at the earliest possible moment. Old complete ruptures call for special consideration of age and general health before surgical intervention is attempted.

INJURIES OF THE LOWER EXTREMITY

Time will allow reference only to one common injury of the lower extremity, simple sprain of the ankle.

Simple sprain of the ankle.—When a joint is suddenly and abnormally twisted or forced to its extreme limit of movement a characteristic type of injury occurs, commonly called a sprain. There is exeruciating pain followed by a severe ache which may persist for many days. Movement of the joint aggravates the pain and leads to voluntary immobilization of the part. The injured area becomes very tender, swells rapidly and later shows ecchymosis; the temperature of the part rises and muscle spasm appears.

Most of us have been taught that a sprain is a partial or complete tearing of ligaments due to overstretching. In recent years this traditional view has been successfully challenged by Leriehe. He has enunciated the opinion, backed by a large clinical experience, that the majority of the sprains are really local functional circulatory disturbances of traumatic origin. He classifies sprains into three groups: simple sprains; sprains complicated by laceration of ligaments; and sprains complicated by avulsion of bone.

A simple sprain, according to this authority, has a symptomatology due principally to the abrupt excitation or injury of the nerve endings—with which all ligaments are well supplied—caused by trauma to the involved ligaments.

Leriche maintains that this type of "pure sprain" may exist, and frequently does so, without macroscopic lesions of the affected ligaments. He considers that lacerations of ligaments and avulsion of their bony insertions are complications which make the prognosis less favourable but which do not essentially alter the symptoms.

Diagnosis of simple sprain.—In a simple sprain the tenderness is well localized over the involved ligaments and there is not marked tenderness over their bony insertions. The latter symptom indicating as it does the possibility of fracture-sprain, calls for x-ray examination. Actual laceration of ligaments can only be diagnosed when the involved ligament, having been put on the stretch, is found to reach beyond its normal limits. Also digital pressure on the stretched ligament may disclose lack of resistance as compared to the normal side. The examination is, of necessity, performed under procaine infiltration of the affected parts.

For the past fourteen years Leriche has made procaine infiltration of the involved ligaments a part of his diagnostic and therapeutic regimen and is most emphatic about its value. Nor can it be doubted that freedom from pain and muscle spasm is essential if a thorough examination is to be made. Furthermore, Leriche's technique has a very valuable therapeutic effect: it breaks the vicious circle of vasodilatation and ædema described above and thus markedly shortens the recovery period.

Treatment.—The tender areas are infiltrated with 1% processine solution (without epinephrine), 10 to 15 c.c. being usually adequate. No immobilizing dressing is applied and the patient uses the part immediately.

Many Canadian and American surgeons use modifications of Leriche's method of treatment for simple ankle sprain. Recently McMaster⁷ reviewed 500 cases of ankle sprain among service personnel. In 200 instances he used a modification of Leriche's method with the greatest satisfaction. Following infiltration with 10 to 20 c.c. of 2% procaine (without epinephrine) an elastic bandage was applied and full activity resumed, except for running and jumping. The patient was instructed that his foot must not be kept still, not even when sitting down. The bandage was removed by the patient onc or two hours after its first application and reapplied by him. There was daily check-up by the surgeon. McMaster reported that all patients thus treated and sent to duty did better than those who rested; their disability seldom lasted longer than two or three 'days. Re injection was never necessary.

Alexanders has previously reported on the treatment of 500 civilian patients in whom a modification of Leriche's technique was used to advantage. When a complete tear of the ligament or a fracture sprain had been ruled out by appropriate means the tender areas were injected with 10 to 20 c.c. of 2% procaine (without epinephrine) and the swelling massaged out. Then adhesive strapping was applied in stirrup fashion almost around the foot and extending up the leg to the junction of the lower and middle thirds. Before applying the adhesive tape Alexander recommends shaving and the application of tineture merthiolate followed by mastisol in order to prevent skin infection under the adhesive dressing.

LOW BACK STRAIN

The term "strain" is somewhat loosely applied to a muscular injury sustained by sudden forcible contraction or sudden violent stretching of a muscle or muscles. The actual lesion is thought to be rupture of some of the fibres of the aponeurotic origin or insertion or, of the muscles themselves. However, no gross rupture is palpable or visible. Strain bears the same relationship to muscles that sprain does to ligaments.¹⁸

When a strain occurs there is sudden pain and disability after the violence has been exerted. The pain may abate for a short time and be replaced by an ache localized over the site of the injury. Swelling, diffuse local tenderness and muscle spasm appear. traction of the involved muscle increases the pain. Simple muscular or ligamentous strain is the most common industrial injury. It is generally due to lifting a heavy weight without proper stance or method, to attempting to carry a too heavy load or to the accidental sudden increase in the load, as when one man of a two man team carrying a heavy beam, suddenly and unexpectedly lets go his end of the beam. Many workmen complain of sudden pain in the back or a sudden "snap" as if something had given away. Frequently the injured man can point to the site of pain, most commonly located in the lumbar region and often extending over the flanks.

Treatment consists of immediate application of cold with support and rest. Later, heat and massage are indicated. In a week or ten days, graduated remedial exercises are advisable. In this regard Kessler's remarks are apropos:

"The simple muscular or ligamen most common result of lifting effo cases, with proper treatment, should disability period not exceeding tw Rest, support, cold and massage d days followed by exercises to maintai which is lost so rapidly, will ensure work, provided there is an absence neurosis."

are th

SPRAIN OF DEEP LIGAMENTS

This type of injury to the back is as uncommon as simple muscular strains are common. The anterior and posterior ligaments of the bodies of the vertebræ or the ligamenta subflava are only injured in very severe accidents which produce dislocations or fractures or similar injuries. In these cases the deep-seated pain and tenderness, the marked muscle spasm and limitation of movement denote the severity of the injury and the necessity for immobilization and prolonged protection from use.¹⁹

PSYCHOSOMATIC PROBLEMS IN INDUSTRIAL SURGERY

Obviously this is a subject that merits a much fuller discussion than my limited space will permit. Nevertheless, the question is of such importance in the duties of an industrial surgeon that one can not refrain from mentioning, even in somewhat dogmatic fashion, some of the psychosomatic aspects of injury in industry.

Luck¹⁵ has demonstrated that psychologically maladjusted individuals were not rare in the armed forces. It naturally follows that they are not rare in industry. When many individuals react in the same way to a given stimulus their reactions are said to be "average reactions". According to Kessler, the well known American authority, more than 50% of all individuals who experience an automobile or industrial accident react "neurotically". One is left no alternative but to consider a traumatic neurosis as an average mental reaction.

Leeky has suggested a theory of unification and consistency of the personality which, in my opinion, offers the most commonsense explanation of many of the psychic phenomena commonly occurring after a comparatively minor accident. Lecky conceives of the personality as a system of ideas or values grouped about the individual's idea of himself and representing all contact between the individual and his environment from birth to adulthood. These concepts or values become organized into a consistent scheme of life, into a workable theory of the living world which is used by the individual in making his adjustments and solving all his personal problems. Out of the manifold experience of his relationship with his environment, his parents, brothers and sisters. playmates and schoolmates, social and vocational contacts, he evolves a concept of life about him. If the unity of this concept is to be maintained there must be a guiding principle of some sort: the individual is constantly looking for some scheme according to which he will be able to avoid conflict. Inevitably he must develop that scheme on the basis of his own experience. By the age of five, usually, he has formulated such a scheme.

The ego, that is, his conception of himself, has been generalized out of practical experience and has been found to work satisfactorily. Parents and others are included in this thought organization but by no means can, or will, he embrace any idea or concept which conflicts with this "build-up" of himself. Any experience which disturbs his idea of himself upsets the consistency and unity of his thought organization. Inability to incorporate such an experience into his scheme can cause as much nausea and regurgitation as can be caused by actual physical changes.

The development of traumatic neurosis .- A commonplace occurrence is an average man driving his car down a familiar street with no thought of any danger. Suddenly another car, approaching unnoticed from the rear, collides violently with his car and completely overturns it. Mr. "Averageman" crawls out from behind the wheel to find that he is safe and sound, that he can walk and, in fact, that he is uninjured beyond a few bruises. At first his only emotion is one of pleasure at escaping injury. A few hours later when he is at home he begins to experience a few anxiety symptoms: his voice is shaky, his fingers are tremulous, he perspires casily, his pulse is rapid and his facial expression is one of great anxiety. With time these symptoms become intensified and increase. They may arise within a few hours or several weeks after the accident.

What is the explanation? His symptoms arise from a feeling of insecurity caused by the thought that his experience in the car accident was inconsistent with his theory or scheme of life. It was consistent to expect and predict that he would be severely injured in an accident in which his car was completely turned over. Instead he was entirely uninjured! This was quite contrary to all expectation based on his own system of values and build up from years of experience and contact with the world. As

he thinks this over he becomes worried and uncertain; he feels insecure because his system or scheme of life has been tested and found wanting. It did not work. He would have expected serious injury in his accident but here he was unhurt! Now he is uncertain about his scheme of life and feels insecure about the future. He does not know whether things are going to work out this way again or not. He feels unsafe not only in respect to traffic accidents but towards every one of the routine acts of his every day life. He is afraid to go out of the house for fear of what may befall him. Since his scheme has fallen down in one of its main concepts it may fall down in respect to all of the others. He sleeps with difficulty and then has terrifying dreams. These latter represent a reacting of the accident experience but somewhat distorted by his unconscious mind in order to view the accident from every possible angle in an endeavour to solve the baffling inconsistency which has upset his scheme of life.

The man's symptoms, usually those of an anxiety state, are an expression of a tension resulting from the expenditure of energy by the personality in an attempt to unify and achieve logical balance and consistency. This process may, and indeed, often does, go on to the complete disorganization of the personality.

In contrast to the above example, if a man receives a severe injury which is predictable on the basis of his own organized system or scheme of values or concepts, he does not develop a neurosis because there is no inconsistency between theory and actuality. His mental organization remains logical and consistent. He has had an accident, he was injured, and that was what one would reasonably expect. In this connection I have noted in "compensation board work" that the workmen who develop neuroses are almost always those who have had comparatively trivial or minor injuries.

Traumatic hysteria.—In the great majority of cases of industrial accident however, the circumstances are consistent with the individual's scheme of life, and the symptoms that develop are not those of an anxiety state but may be invented for a definite but unconscious motive. This mechanism can best be understood if one considers the scheme of the personality in graphic form (Fig. 1).

The large outer circle represents the personality including all the values, concepts, ideas, beliefs and attitudes built up and integrated into a consistent organization affecting as it does the individual's idea of himself, the latter being the core of the figure of the personality circle.

If an individual be insulted, there is introduced within the personality circle a low value of himself. Since he naturally has a very high value of himself the introduction of this low value immediately causes a marked psychictension due to the conflict or inconsistency of these ideas (Fig. 2). It is impossible for both a high value and low value of one's self to coexist. Since a high value is of greater importance and intensity something must be done to get rid of the low value. This may be done in one of several ways. The low value may be thrown out of the personality circle by striking the original attacker or by calling him some obscene name or by forcing him to apologize. The equalization of value for value erases the intruding low value from the scheme of the personality and thus removes the psychic tension and all associated symptoms.

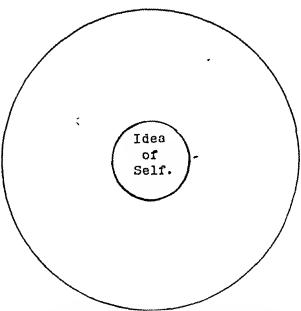


Fig. 1.—The outer circle represents a "scheme of life" composed of a system of ideas or values all consistent with the central core, "the idea of self".

In similar fashion an insult to the body (soma)—a part of the personality—introduces a low value into the organization. This low value must be eliminated since it is inconsistent with the high value that the individual holds for his soma. The low value can be eliminated by an equal value being given to it in return, this latter value constituting a form of com-

pensation for the damage suffered by the personality.

The form that this compensation takes will depend on the nature of the standards existing in the national social attitudes or ideology. In Canada and the United States this value is a monetary one. In Russia, instead of desiring money as compensation for damage to the soma or personality, workmen rather seek better rations, a holiday in convalescent homes, particularly in some faraway rest home in the Caueasus.

In cases of traumatic hysteria the symptoms are characterized by an intensity or persistency out of all proportion to the physical condition present. A lacerated scalp, a wrenched knee or a strained back are featured by a period of complaint and disability far beyond the ordinary expectations. This is particularly true of head injuries,

The people who develop these mild hysterical symptoms, on analysis, are found to represent a cross section of the community with only a few "hysterics" and over-compensated personalities included. Most of them are mentally well adjusted individuals from all classes in the social seale, including professional and wealthy people as well as those in the lower economic and vocational groups.

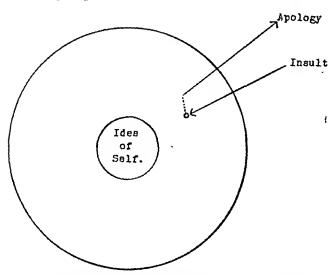


Fig. 2.—Hysterical symptoms are the manifestations of a psychic tension between a low value introduced into the scheme of life and the high value that the individual holds of himself. The "low value" may be a personal insult (psychic trauma) or a physical injury (somatic trauma).

Those who have had the opportunity of carefully examining and talking to a large number of injured workmen will agree that the incidence of deliberate planned assumption of symptoms,

or malingering, is rare.¹⁷ The cause of symptoms lies deeper in more fundamental psychic motivation: the preservation of the consistency and unity of the personality. As soon as compensation is paid the tension is released because the low value introduced into the personality circle has been equalized.

The term "gold cure" has been applied to this mechanism (Strumpell) and many writers, particularly German writers, have interpreted this behaviour as being due to a desire for financial gain. In our opinion, and it is one held by other and more experienced observers, these injured workmen are not blameworthy. They are doing what seems to them to be consistent with their scheme of life. In about 5% of cases the symptoms are much more intense and may take on the form of classical hysteria with paralysis, contractures, etc.

Treatment of traumatic hysteria.—The award of compensation acts as treatment and cure in the great majority of these cases. Nor is the size of the award necessarily a factor in the effectiveness of the cure. In conclusion, it would seem equitable and practical to compensate these people for time loss on the basis of their physical disability without too much consideration of the number and nature of their symptoms, some of which are rather bizarre.

Treatment of traumatic neurosis.—Individuals suffering from traumatic neurosis do not recover with "gold treatment". They require therapy of a psychological and sympathetic nature. They are casualties of industry as much as the man who has an amputated foot and they -may be much more difficult to rehabilitate. A man who is lame in both legs may be able to do a full day's work while a neurotic individual may be completely incapacitated. One cannot but surmise that future generations will regard present methods of "disposing of" these unfortunate and mentally disabled individuals in much the same light in which we at present regard the primitive methods employed in the not-so-remote past when the mentally ill were scourged and burned in order to exorcise the devil which had "possessed" them.

SUMMARY

1. The frequency and importance of injuries to the hands of working men are stressed and the therapeutic principle of early elevation after injury emphasized.

- 2. The principles of the diagnosis and treatment of tear of the "rotator cuff" of the shoulder are discussed.
- 3. Leriche's method of treatment of sprains is reviewed and its application to sprain of the ankle discussed.
- 4. Common low back strain is discussed and its treatment briefly referred to.
- 5. Traumatic neurosis and traumatic hysteria are differentiated and treatment briefly discussed.

REFERENCES

- COUCH, J. H.: Surgery of the Hand, University of Toronto Press, 1944.
 McIndoe, A. H.: Personal communication.
 Fleating, C. W.: Brit. M. J., p. 314, September 8, 12042

- 1945.
 4: WATSON-JONES, R.: Fractures and Joint Injuries, E. & S. Livingstone, Edinburgh, p. 468, 1943.
 5. Moseley, H. F.: Shoulder Lesions, C. C. Thomas, Springfield, Ili.
 6. Leriche, R.: J. Bone & Joint Surg., 10: 492.

 Jour de Chr., 54: 593, 1939.
 7. McMaster, P. E.: J. Am. M. Ass., 122: 659, 1943.
 8. Alexander, H. H. Jr.: Am. J. Surg., 50: 581, 1940.
 9. Lambright: Ann. Int. Med., 2: 807, 1929.
 10. Curtiss' Obstetrics and Gynæcology, Phila., 1933.
 11. Seng, M.: Canad. M. A. J., 28: 283, 1933.
 12. Keyes: Urology, New York, 1928.
 13. Love, J. G. and Walsh, M. N.: Arch. Surg., 40: 454.
 1940.
 14. Kefgan, J. J.: Arch., Neurol. & Psychology, 50: 67.

- 14. KEFGAN, J. J.: Arch., Neurol. & Psychology, 50: 67.

- KEFGAN, J. J.: Arch., Neurol. & Psychology, 50: 67, 1943.
 LUCK, J. V.: J. Bone & Joint Surg., April, 1946.
 KESSLER, H. H.: Accidental Injuries, Lea & Febiger, p. 607, 1941.
 LECKY, P.: The Theory of Self-consistency in Personal Problems. Report of Twelfth Ann. Mtg. Amer. College Personnel Assn., Feb., 1935.
 FERGUSEN, L. K.: Surgery of the Ambulatory Patient, J. B. Lippincott, p. 710, 1942.
 KESSLER, H. H.: Accidental Injuries, Lea & Febiger, Phila., p. 328, 1941.

THE RH FACTOR AND ERYTHROBLASTOSIS*

C. E. Snelling, M.B.

Toronto, Ont.

DURING the past five years in the field of pædiatrics no other condition has created more interest than the relationship of the Rh factor to erythroblastosis fetalis. The term ervthroblastosis covers several conditions which have unlike clinical manifestations but seem to have a common pathological background.1 These arc certain types of intra-uterine fetal death, congenital fetal hydrops, icterus gravis neonatorum and certain cases of congenital anæmia. The outstanding features of all these are fetal types of blood formation, erythroblastosis, or the presence of an abnormal num-

Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Padiatries. Banff, Alberta, June 14, 1946.

ber of nucleated red cells in the circulation, anæmia, jaundice, familial tendency and ædema of the body tissues. Recent investigation has added that it is probably associated with immune factors in the mother's blood, namely the Rh factor.

Fetal hydrops and icterus gravis have been known for some time.2 In 1910 Schriddle suggested that icterus gravis and fetal hydrops In 1912 Rautman were related conditions. gave the name erythroblastosis to the symptom complex. Blackfan, Diamond and Baty in 1932 observed the association of these two with con-Intra-uterine death of the genital anæmia. fetus and fetal hydrops are problems of the obstetrician. Occasionally cases of fetal hydrops survive long enough to be seen by the pædiatrician but usually they die very shortly after birth.

Icterus gravis is the most frequent of all of the types of erythroblastosis fetalis. hydrops occurs about 1 in 1,500 deliveries. whereas icterus gravis occurs in about 1 in 500. Icterus gravis has been reported in all races and both sexes.

The clinical manifestations of icterus gravis are (1) jaundice which commences at or near birth and increases to a very intense degree; (2) hamolytic anamia which progresses; (3) numerous circulating erythroblasts; (4) enlargement of the liver and spleen; (5) drowsiness and convulsions; (6) hæmorrhagic tendency occasionally also with purpura; (7) bile in the urine; (8) normal coloured stools; (9) direct van den Bergh; (10) fatal termination in a large proportion.

In the history one finds that usually there has been a normal child or children preceding the case and then all succeeding pregnancies show one or other of the types of erythroblastosis fetalis. Another feature often observed is the history of a placenta being larger than usual and a yellow staining of the vernix. The jaundice, which starts very early, may be so marked that one does not appreciate the pallor. The spleen and liver are invariably enlarged. Petechial hæmorrhage or gross hæmorrhage are not uncommon. The blood picture shows a macrocytic hyperchromic anæmia. The hæmoglobin is higher than the red blood count would warrant. The red count varies from 3.5 million down to as low as 400,000. The number of nucleated red cells varies, in some not being

^{*} From the Department of Pædiatrics, University of Toronto, and the Hospital for Siek Children, Toronto, under the direction of Alan Brown, M.D., F.R.C.P.

brownish or greyish black horny mass and presenting a velvety appearance. They are seen most commonly on the schorrhæie areas, namely the sternal or interscapular region and about the waist line, and more rarely on the face and back of the hands. They are generally treated with CO₂ snow with excellent results. Where there is evidence of malignancy it is generally of the basal cell type.

While there is no sharp dividing line between those growths with simple epithelial changes and those which are definitely malignant any dermatoses of long duration such as nevi, keratoses, and benign tumours, may undergo malignant change usually carcinomatous. two types of cutaneous carcinoma commonly seen, the basal cell is the commonest. Metastasis does not occur early or easily in marked contrast to melanocarcinoma previously men-A basal cell carcinoma arising on tioned. normal skin begins as a small shiny or scaly grey ivory yellow or yellowish red nodule. It may be either slightly elevated or retracted with a shiny pink or pearly surface often covered by a tiny scale or crust. There may be telangiectasis at the borders with a tendency to bleed on minimal injury, followed by repeated crusting and breaking down. As the growth tends to spread peripherally there is often a rolled appearance to the margin with a small central superficial scar. Its site of predilection is the face, particularly the temples, forehead, nose and eyelids, although the lesions may arise in any part of the body. At this stage there may be no clinical difference between basal cell and squamous cell carcinoma. With future advancement of the growth with invasion of the underlying tissues there is extensive ulceration—the rodent ulcer. This in its more extensive manifestations is fortunately rarely seen today owing to earlier diagnosis and improvement in treatment. Excision may be carried out but where cosmetic considerations may not permit, radium and x-rays give excellent results.

Squamous cell carcinoma is a more rapidly growing type and development frequently follows prolonged exposure to certain rays and chemical agents. May I mention here that arsenical keratoses seen on the soles and palms, the result of long-continued absorption of arsenic following the taking of Fowler's solution for psoriasis or other skin diseases. These

sometimes occur even after relatively small amounts have been taken over short periods. and Fowler's solution is one of the most prolific sources of arsenical keratoses. The marked hyperkeratotic stimulation and the resulting lesions are very subject to carcinomatus degeneration of the squamous cell type. condition known as superficial benign epithelioma, actually carcinoma of an extremely low grade of malignancy, occurring chiefly on the trunk, is seldom seen in persons who do not give a history of taking arsenic in the trivalent form usually for psoriasis. Hydrocarbons. volatile or finely dispersed are commonly encountered in some industries and are definitely keratogenic, textile oils being the worst offenders. Workers with various motor oils, tar. coal and petroleum products, chimney sweeps, stokers in gas works, smelters, pitch and anthracene workers all show a high incidence of these malignant growths. In Australia the sun's rays are considered such an important etiological factor that keratoses on exposed areas are excised. Because of the great part played by external agents, the situations most often attacked are the face, backs and hands, and genitalia. The growth is particularly liable to start in those flexures where dust may collect for example side of the nose or ear. The juncture of the skin and mucous membrane of the lips is also a common site. While subject to ulceration, simulating a rodent ulcer, differentiation is made from a microscopical examination of a section of tissue or biopsy. All lesions suspected of malignancy should be subject to a biopsy for confirmation of the diagnosis. In this tumour the great mass consists of well-defined prickle cells with often central whorls of flattened keratinized cells. As secondary lymph node involvement does not occur early except in those rare examples of rapid deep spread, the outlook is generally excellent. Excision or radio-therapy gives the best results, subject to examination at three months' intervals for a year, and then at less frequent intervals for a further period of at least four years.

No mention has been made of such tumours as milium lymphangioma, xanthoma, keloids, epithelioma adenoides cysticum, adenoma, leukæmia and others, some of which are of negligible importance and others of considerable rarity.

Medical Dental Building, Vancouver, B.C.

NUTRITION IN SURGERY*

H. Rocke Robertson, M.D. and D. W. Smaill, M.D.

Shaughnessy Hospital, Vancouver, B.C.

I-INTIL relatively recently nutrition has been an aspect of medicine to which surgeons have paid but little attention. With the discovery of the fundamental importance of fluids and electrolytes, interest in this subject was aroused and it has been maintained by the demonstration of the vital part played by proteins and vitamins in the various reparative and defensive processes of the body. interest is not confined to those dealing with the surgery of the gastrointestinal tract, for malnutrition is encountered in every field. being almost invariably present to a degree in the chronically ill and those who have undergone any major operation or have sustained any severe injury.

Evidence for this statement can be seen daily. It was observed by all those who dealt with battle casualties that even in men suffering apparently trivial wounds, there would be a considerable loss of weight and strength during the period following the trauma, and in those sustaining the more severe injuries such as abdominal and chest wounds and major compound fractures, the weight loss would be great and would not be made good for many months. In civilian practice the same situation prevails.

Chart A illustrates the weight curves of 20 cases undergoing herniotomy. These cases were kept in bed for 7 days postoperatively and were offered the ordinary ward diet. It will be seen that the average weight loss during the postoperative period was 6 lb., a not inconsiderable amount.

A more marked weight loss is seen in patients undergoing a more severe procedure, as shown in Chart B illustrating the weight curves of 8 patients following gastrectomy. An average weight loss of 10.2 lb. is important in a group of patients who are characteristically underweight to begin with.

CAUSE OF MALNUTRITION

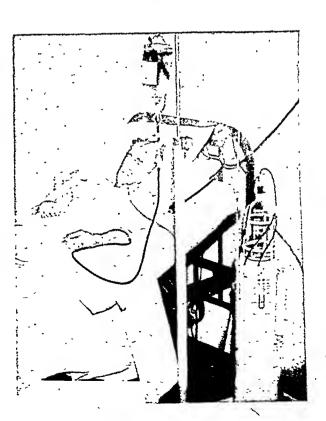
While it may be true that there is such a thing as the "toxic destruction of protein"

found in cases suffering from sepsis, tumours and extensive injuries, it is a fact that the most important cause of malnutrition is starvation. This starvation may be due to one of two factors: (a) An inadequate intake of food, or (b) an excessive loss of essential tissue fluids in the presence of an otherwise adequate diet.

In the first instance the inadequate intake may be due either to the fact that insufficient food is offered to the patient (Stevenson and his co-workers¹ have shown that this is often



Fig. 1



^{*} Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Surgery, Banff, Alberta, June 12, 1946.

the case) or to the fact that the patient does not eat all the food placed before him either because it is not to his taste or because he has no appetite.

In the second group the cause of malnutrition is also obvious. All tissue juices contain an abundance of substances high in food value and the loss sustained from a large burned area or by a severe diarrhea or copious vomiting may well be sufficient to produce gross depletion within a matter of hours.

The accompanying photographs are shown to illustrate two common methods of starvation—the one (Fig. 1) a patient losing large quantities of exudate daily and the other (Fig. 2) a patient following gastrectomy having his gastric contents removed and receiving an inadequate diet by vein.

(Postoperative days shown at top.)

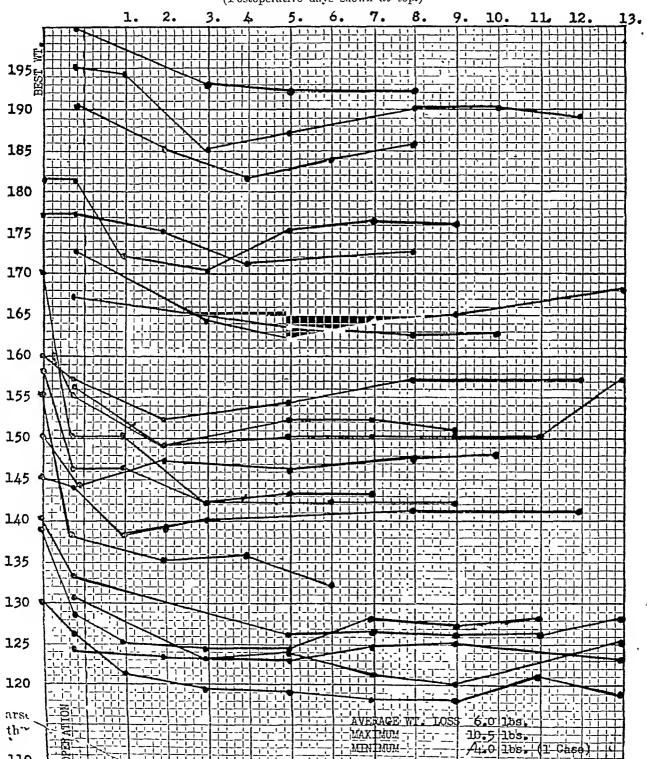


Chart A .- Twenty cases uncomplicated herniotomies kept in bed for 7 days.

EFFECTS OF MALNUTRITION

The symptoms of malnutrition are weakness, apathy and anorexia. An interesting measurement of the first symptom has been made by Co Tui, etc.² who carried out ergograph studies on a group of postoperative cases and found a progressive loss of strength during the periodof starvation. They also showed that in another group of cases undergoing a similar procedure, but who were adequately fed, there

was no loss of strength, indicating that the weakness results from the starvation itself not from reaction to operation or to the fever or to any other factor that might be blamed.

Apathy, found so commonly in the seriously ill, is not measurable and it is not possible to say that it is due entirely to lack of nourishment though one has seen evidence to suggest that this is so. It is certainly true that when a patient's intake is increased to a level at

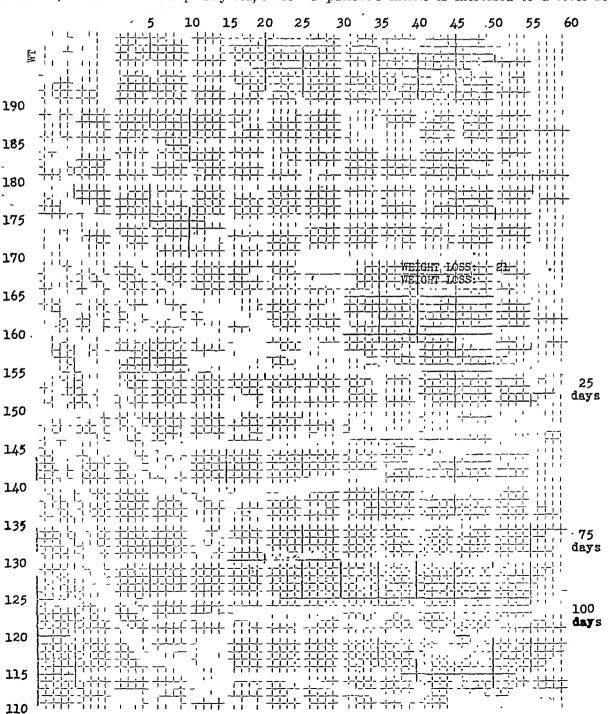


Chart B .- Weight curves in 8 uncomplicated gastrectomies for duoden

which he is gaining. his morale improves at once.

Anorexia is an invariable symptom, though it is not always recognized as such, and it is this fact which renders the management of these cases so difficult. If loss of appetite is regarded as a challenge to the doctor's ingenuity much will be done to correct it. If, on the other hand, it is accepted as an insurmountable difficulty, the case may well be lost.

The pathology of starvation is not clear cut, for the picture is so often clouded by associated disease, but certain points appear to be well established. There is a progressive loss of the body protein during starvation, at a rate of about 1 gram per kilogram of body weight The ensuing hypoproteinæmia will result in an ædema of the dependent subcutaneous tissues but will be present in the internal organs some considerable time before it is demonstrable externally. The ædema involving the brain, heart, lungs, liver, kidneys, etc. will result in decreased efficiency. Coupled with the hypovitaminosis which will inevitably develop, one finds that starved patients are more prone to infections, involving the wound itself or the lungs; show reduced resistance to already established infection; show delay in wound healing and return of strength; show reduced resistance to the toxins of anæsthesia.

ESTIMATE OF PATIENT'S STATE OF NUTRITION

At the present time there is no reliable method of estimating this aspect of a patient's condition; however, a fair opinion may be formed from the following data:

A. The general appearance—evidences of weight loss, dehydration, etc.

B. The comparison of the patient's present weight

with his optimum weight.

C. The dietary history—an inquiry into the type and quantity of food that has been consumed by the patient during his illness.

D. History of vomiting, diarrhæa, wound exudate, etc. E. Red blood cell count and hæmatocrit which are regarded as factors of considerable importance although not necessarily quantitative estimates of the nutritional state.

F. Plasma protein value, which may yield information of great importance but which may be misleading in that the total value does not necessarily indicate the general protein state of the body. For example, one may find, on the one hand, normal values in a patient who is grossly under-nourished (the burned patient whose picture is shown had a plasma protein value of 7.8 gm. per 100 c.c.) and on the other hand a low plasma protein in a patient who in all other respects appears well, or a falling value in a patient who is gaining weight and strength. The explanation of this may be found if differential protein values are determined, for it is probable that it is mainly the albumen faction that

is decreased in malnutrition while the globulin and fibrinogen factions may increase to maintain the total, value at or near its normal level. In this same burned patient a differential protein analysis showed: albumen 3 gm., globulin 4.75 gm. with an A/G ratio of 1:1.5 compared to the normal of 2:1.

G. Vitamin estimates are not yet of any practical value. The levels or the activity of vitamin A, parts of the B complex, C and K can be measured, but in most instances (execpting vitamin K) the knowledge gained

does not warrant the labour expended.

Let us now examine the methods of feeding and the substances available for administration by the various routes.

TABLE I.
Basic Requirements in Diet

A. Fluids...... 2,000-3,000 c.c.
B. Electrolytes, 6 gm. NaCl
C. Proteins..... 90 gm.
D. Fat....... 112 gm.
E. CHO...... 400 gm.
F. Minerals....
C. Vitaming.... Vit. A 4,000 LU: Thismire.

G. Vitamins...Vit. A 4,000 I.U.; Thiamine, 2 mgm.; Riboflavin, 3 mgm.; Nicotinic acid, 20 mgm.; Vit. C., 75 mgm.; Vit. K., 2 mgm.

Oral—regular diet.—There is certainly no question that there is no perfect substitute for an ordinary diet taken in the ordinary way. There are, however, two points which must be re-emphasized.

One must be certain that the patient is offered an adequate diet. Stevenson and his co-workers in their excellent survey of nutrition in Canadian military hospitals showed that in many instances the diet actually offered to patients was very much less than had been ordered for them, a fact of which the medical officers in charge of the cases were entirely unaware. Furthermore these patients were not even eating all of the inadequate diet presented to them. Bearing these facts in mind and realizing that in all likelihood similar conditions prevail in civilian hospitals, one will readily see that it is worth while to check these matters carefully in all cases of importance.

In many cases it may be necessary to augment the ordinary diet by substances having a high food value in relatively small bulk. Many concentrated foods are available. The following examples are given as being useful for this purpose (Table II).

Amigen and nutramigen are commercially prepared protein digests of extremely high food value in a small volume. The taste of these substances is so deplorable that few patients will take them. It is said that a liking for them can be acquired, but this is not our

TABLE II.
SPECIAL DRINK—1 PINT

	Protein	Fat	Carbohydrates
3 eggs	18	18	
½ pint ice cream	12	36	60
6 tablespoons Casec	42		
3 tablespoons sugar			15
2/3 cup whole milk	6	7.5	9
~	78	61.5	84
Total calories per pint	-1,201.5	•	<u>-</u>

Casec Drink						
	Protein	Fat	Carbohydrates			
3 tablespoons Casec	21		· · · · · · · · · · · · · · · · · · ·			
½ cup cream	. 4	22	8			
2 cups milk	16	20	24			
1/6 pint ice cream	4	12	20			
1½ teaspoons sugar			8			
1½ teaspoons syrup			5			
	45	54	65			
Total calories per pin	t740 cal	•				

experience. They have a place, nevertheless, for some patients can tolerate them and those who cannot take them by mouth, can be given them by tube if necessary.

Jejunostomy feedings.—These are essential in those patients who cannot take food by mouth and whose condition is such that they may not be maintained long enough on intravenous feedings.

Intravenous feedings.—In recent years the advances in intravenous therapy have been great. With the production of amino acids in a form suitable for intravenous administration and the popularization of whole blood and plasma for nutritional as well as resuscitative purposes, it is now possible to provide a diet by this route which comes within reasonable distance of being adequate. Recently Brunschwig and Bigelow³ reported a case in which they maintained a patient on intravenous feedings alone for 46 days and at the end of that period were able to perform a major abdominal

TABLE III.

	Per 1,000 c.c. Carbo-						
	Protein	Fat	hydrates	Salt	Calories		
Intravenous: 1. 5% glucose saline 2. Plasma 3. Whole blood. 4. Amigen 5. Parenamine. 6. Gelatine, isinglass, gumacacia	70? 141.5 38.5	0 ? ? 0	50 ? ? 50 	9 ? ? 2	200 280 566 344		

procedure with good result. They used amigen and glucose saline and whole blood—the latter being given only 5 times during this period. While this ease is a most unusual one, it does show what can be done.

Table III includes the various substances that are available for intravenous administration together with figures showing their approximate food values. It will be noted that glueose saline, which for years has been the mainstay of intravenous therapy, is exceedingly low in food value and one can well understand why it is that patients receiving enough of this fluid to maintain their water balance should still become grossly undernourished. In the present day it is an unjustifiable error to place a patient on a regimen of say 3,000 c.c. 5% glucose in saline in a day even if it is proposed to continue this treatment for only 2 to 3 days. enough his fluid requirements will be met, but that is all that can be said for the method. He will be receiving too much salt (about 26 gm.) which may be harmful, and he will not be getting nearly enough nourishment—a total of 600 calories made up entirely of carbohydrate, which is quite inadequate.

The following prescription is much more beneficial.

2,000 c.c. Amigen.
500 c.c. 10% glucose in saline.
500 c.c. 10% glucose in distilled water.

This provides 77 gm. protein, 300 gm. carbohydrate and about 8.5 gm. NaCl yielding about 1,500 calories.

We have considerable experience in the use of intravenous amigen and have found it valuable. The reactions have been few and none has been severe. It contains all the essential proteins in a concentration sufficient to supply an almost adequate amount of protein in the volume of fluid which the patient will require for his daily needs. That it does not fill all the requirements is obvious, for its ealorie yield is low and though a patient receives his full quota of nitrogen by this means he will continue to lose weight because of the low ealoric intake. It is regrettable that to date no satisfactory preparation of fat has been produced for universal use. When this is available it will be possible to maintain the nutrition of a patient by the parenteral route alone.

The nutritional values of whole blood and plasma have not as yet been determined for it is not definitely known whether or not the proteins that they contain are utilized. The figures given above for these substances assume (perhaps incorrectly) that all the protein of the plasma and the protein of the hæmoglobin are utilized. It is probable that they are of distinct value and it is recommended that they be included in any long term program.

We have not had sufficient experience with parenamine to pass judgment on its efficacy and we have not used any of the colloids. We have no knowledge of prolonged intrasternal or subcutaneous feedings.

TUBE FEEDING

Tube feeding though seldom necessary has a definite place in the armamentarium. interest in this regard is the recent work of Mulholland and Co Tui on the use of the double lumen Abbott-Rawson tube following gastrectomy. One lumen, to which suction is applied, leads to the remaining gastric ponch. other, through which a fluid diet is injected, passes through the stoma into the upper reaches of the jejunum. These workers have found that is is possible to maintain gastrectomized patients in positive nitrogen balance during their postoperative period and they have produced a group of patients who show an actual increase in weight and strength following this extensive operative procedure. Such results are highly commendable and one would do well to emulate them. Obviously in many types of eases this is impossible but in others, by one device or another, nutrition can be maintained. The Miller-Abbott tube may be used for feeding purposes in complicated cases, for example:

- 1. In those with high intestinal fistula, the Miller-Abbott tube may be passed beyond the fistula and feedings introduced through the tube.
- 2 Where there is an obstructive lesion in the distal small intestine, a Miller-Abbott tube can be passed down to the obstruction and suction maintained at this site. Meanwhile the patient can take a low residue diet by mouth and he will derive considerable benefit from it as it passes through the gut before being suctioned off.

Let us now examine how these principles may be applied to the various types of cases with which one is confronted:

prov.1. The "routine" type of case—for example, well, of arnia, the patient with uncomplicated appending if differed the simple fracture. To regard it is probable that it has a nutritional problem might

at first appear to be ridiculous. The mortality in this group is negligible and most surgeons are satisfied with the results that they achieve. We would submit, however, that it is important to treat these patients energetically, to keep them as active as possible consistent with their comfort and well being, to provide them withan adequate diet by one means or another without any unnecessary intermission, and our reasons are: (a) The period of convalescence will be shortened, resulting in a lowering in the number of hospital days and in the cost to the patient. (b) A reduction in the number of complications. (c) The fact that if at any time during the convalescence, a complication should arise the patient will be in a better position to overcome it.

- 2. The undernourished patient who presents himself for surgery. Examples of patients falling into this group would be those with chronic gastro-intestinal disease such as gastric or duodenal ulcer, carcinoma of the stomach or large bowel; patients with chronic infection such as pulmonary tuberculosis, osteomyelitis, etc. Here the initial problem is to render these patients as fit as possible for surgery and in this situation time is an important factor. In so many cases, adequate preparation cannot be carried out within a matter of days. So often one is inclined to give a transfusion or two and to order a high calorie diet for a few days with the quite unjustified feeling that all that can be done has been done. On careful inspection, it is obvious that such a condition cannot be reversed rapidly and one should be resigned to spend, in many cases, a matter of weeks of thoughtful and energetic management before the peak of condition is reached. The diet must be most carefully supervised and if necessary, other measures (transfusions of blood, plasma, amino acids) must be brought to bear upon the case. There is no doubt whatever that it is worth while to wait until the maximum benefit is attained.
- 3. The group of patients, who, following operation or injury, are seriously ill and who, if left to their own devices, will become nutritional problems. The objective in the management of these cases is to maintain their nutrition at as high a level as possible during the days when they either cannot or will not take a full diet and to make certain that when they do resume an ordinary diet they are provided with and actually consume enough food. Except

in special instances such as the tube feeding of postgastrectomy patients already mentioned. it is practically impossible to prevent a degree of weight and strength loss, but at the same time, every effort should be made to minimize this loss

During the period when a patient is subsisting on intravenous feedings he should be given the greatest volume of the most nutritions fluids consistent with safety. When he starts to take fluids orally, these fluids should be of high food value and if he cannot take enough by mouth, supplementary intravenous feeding sufficient to satisfy his caloric requirements should be continued until he can take all he needs by mouth.

If such a regimen is followed, the effects of malnutrition will not become so marked as they otherwise would, the patient's strength will return to normal sooner and, what is more important, his condition at any time during his convalescence will be better than it would be were his diet left to chance.

REFERENCES

- REFERENCES

 1. STEVENSON, J. A. F., SCHENKER, V. AND BROWNE, J. S. L.: J. Canad. Med. Services, 2: 345, 1945.

 2. Co Tui, Wright, A. M., Mulholland, J. H., Carabba, V., Barcham, I. and Vinci, V. J.: Ann. Surg., 120: 1, 1944.

 3. Brunschwig, A., Bicelow, R. R. and Nichols, S.: J. Am. M. Ass., 129: 441, 1945.

THE KUNTSCHER METHOD OF INTRAMEDULLARY PIN FIXATIONA

R. K. Magee, B.A., M.D., F.R.C.S.(Eng.) and [C.]

Peterborough, Ont.

THE method about to be described was original with Kuntscher, a German surgeon of Fribourg. It was popularized at the Kiel German Naval Hospital and the first paper appeared in The method was to use axial March, 1940. intramedullary fixation by large cannulated stainless steel rods filling the cavity; and while at first considered anti-physiological, it gained certain popularity in central European countries. The observations which I would report were the result of several visits to the Clinic of Professor J. F. Nuboer in Utrecht. There I saw some 20 cases of a series of some 60 patient in which this method had been employed.

findings and conclusions are remarkably close to those of Soeur¹ who has reported on 55 cases.

The method is essentially that of using an intramedullary pin for the fixation of fractures of the shafts of long bones. Many of the features resemble the technique of the Smith-Peterson pin fixation for the neck of the femur and in fact the basic surgical principle is the same in the two methods. The theoretical objection of the loss of marrow in one bone is known to be of little importance, and the danger of fat embolus has proved to be negligible.

The pins used are made of V2A Krupp steel. (Later pins made by Still in Sweden were used in Holland and Belgium. Down Brothers are in the process of making them now.)* They are of various sizes as the pin chosen for each case is selected on the basis of the width of the medullary canal and the length of the shaft it should pass through to hold all fragments. The pins are in sizes number 7, 8, 9, 10, 11 which is the actual diameter in millimetres of the pin. The size of pin to be used is accurately measured by taking an x-ray of the fractured bone at one metre distance from the x-ray tube: then the actual width of the medullary canal can be directly measured on the plate. The next

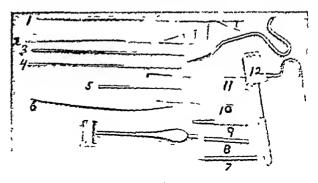


Fig. 1.—Special instruments for Kuntscher pin insertion.

size smaller pin is selected so that it may just pass without difficulty through the medullary canal. For adult femurs No. 8 is the usual size. The pin then is 8 to 9 mm, in diameter and may be of varying length from 12 to 24 inches dcpending on the casc. In cross section it is "U" shaped (with longitudinal flutings to prevent rotation) the centre being the tunnel which carries the pin over the wire guide which is, first inserted. The pins for femurs are abso-

^{*} Presented at the 66th Annual Meeting of the Ontario Medical Association. May 23, 1946.

^{*} Meanwhile, it has been possible to duplicate the pin of Kuntscher, and these will be available for use. (R.K.M.)

lutely straight (3, 4, 5 Fig. 1). Those for tibias are slightly curved and "V" shaped in cross section, and are inserted from an oblique groove in the upper end of the tibia into the medullary canal, and then traverse the medullary cavity to its lower end. More recently split pins for tibias have been introduced so that the split lower ends flare out-into the wider lower end of the medulla.

In addition to a considerable selection of pins for the various cases to be treated, there are some other special instruments, (Fig. 1). The first is a heavy wire guide with a handle at one end and sharp point at the other and about two feet long (1, 2, Fig. 1). It is about 3 mm. in diameter and rigid enough to stand hammering. It is introduced from the top of the femur by tapping and by boring action with the handle until it is in the medullary canal, and then it is passed across the fracture line. There are several punches, hollow ones and ones with recessed ends used for hammering the last part of the pin over the guide, and for driving the pin home into the bone without burying it (7, S, 9, Fig. 1). There is a special hook that engages in a hole which is in the top end of each pin for its removal (10, 11, Fig. 1). And there is a split fork-shaped hammer that will hammer against the handle of the hook to tap out the pin in its removal (12, Fig. 1).

SELECTION OF CASES

The ideal case for the method is the transverse fracture of the middle of the shaft of the femur. After that fractures in the upper third, then tibia upper and mid-shaft, and occasionally the humerus. It is not so applicable to cases of the lower third of femur or lower tibia, as the medullary cavity widens out and the fixation is not so satisfactory. It is of considerable value in cases of pseudarthroses. It may be combined with bone grafts where bone defects of considerable size are present. It is unsuitable for grossly comminuted fractures, and for young people. It has been used from the age of twelve years. It may be contraindicated in compound fractures.

FEMORAL REDUCTION

Prof. Nuboer has made his own traction table which can be attached to any operating table. It is on the principle of the Hawley table, but as the patient is operated upon in the case of the femur lying on the side with the fractured femur uppermost and with the hips flexed, there is instead of a central perineal post for counter traction, a post that is vertical in front of the symphysis pubis. And in addition a perineal padded band is used which fastened to the upper end of the table gives counter traction. The traction is then applied to both the uppermost and the underneath limb by a

method similar to that employed in the Hawley table. The foot pieces have universal joints and screw traction is employed. The extension bars are adjustable in length and also may swing in an arc on the operating room floor to give the desired flexion to either hip. A photograph of the table with the patient in position is shown (Fig. 2).

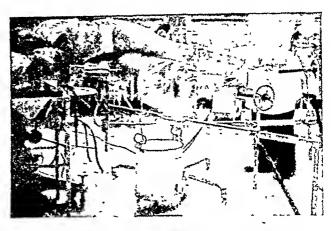


Fig. 2.—Position on the table for the insertion of a Kuntscher pin in the left femur.

The actual reduction is done by manipulation of an assistant under fluoroscopic control in two planes while the traction is adjusted. As the operator has the intramedullary guide down to the fracture site he is ready to tap it across the fracture line into the medulla of the lower fragment. Closed reduction and insertion of the guide followed by the pin from a small incision over the upper end of the femur is the end to be desired, but if it is impossible to achieve satisfactory reduction in this way due to interposition of soft parts, or callus or loose fragments, open operation at the fracture site and open reduction are resorted to.

The steps of the procedure for a femoral pin will be described as witnessed. The patient was a 32-year old female student of Amsterdam University who had sustained a simple slightly oblique fracture of the mid-shaft of the left femur three days before the operation. was given epidural block anæsthesia-which is the routine and which is preferred at the clinic to spinal anæsthesia. The patient was placed on the table in position lying on the right side with hips flexed and with traction and countertraction as described. Preparation and draping over the limb with portable x-ray units in two planes and head fluoroscope in position was on similar lines to that employed in the Smith-Peterson pin technique. The operator stood at the patient's back, level with the up-

permost hip as she lay on her side. A two inch skin incision was made over the upper end of the greater trochanter of the left femur and the cortical bonc exposed, just to the inner side of the overhanging ledge of the great trochanter at the junction of trochanter and neck. The sharp pointed guide was engaged in the cortex and tapped with a mallet to pierce the cortical bone. Two or three times it slipped off the outside and went down the lateral surface of the trochanter before it was accurately placed and engaged in the cortical boile. It was then advanced by a combination of tapping and boring motion along the medullary canal until the fluoroscopist announced that it was at the fracture line. The intramedullary position of the guide was verified by the feel and sound of the boring very much as it may be sensed in the neck of the femur.

This is the critical point in the procedure. At this point the assistant with the aid of the fluoroscope attempts to line the lower fragment with the upper. And the operator attempts to pass the guide into the medullary canal of the lower fragment by tapping it with the mallet. Eight such attempts were made before failure was admitted and the closed reduction abandoned. This had taken 25 minutes from the commencement of the operation.

Open reduction was then done and in five minutes the fracture site was exposed and a spike of bone freed from muscle it had penetrated. and the guide was passed well down into the lower fragment. The 8 mm. pin of suitable length was then driven over the guide from the upper end of the femur. It was a tight fit for the small medullary canal and required forceful blows of the mallet. When the upper end of the pin was down to the handle of the guide a hollow punch was used over the guide to advance the pin; and when the end of the nail was nearing the cortex the guide was removed and a punch with a halfinch recess in the end was fitted over the pin like a cup to drive it home but to leave the hole for removal outside the cortex. The guide had been removed by using the hook and forked hammer straddling the shaft of the hook and hammering against the handle of the hook. The wounds were closed. The post reduction x-rays showed 100% anatomical reduction and alignment. No external splinting was applied. There was absolutely no shock to this

procedure and at the end of the operation we saw patients able to lift themselves up on the balkan frame and assist themselves into the bed.

Postoperative management.— The patient is encouraged to move about the bed and bend the hip and knee in two or three days after the operation. Cases that are suitable such as transverse fractures in the middle third are all allowed to walk in 2 to 3 weeks with crutches, in 6 weeks with two canes, others when the x-rays show adequate callus formation.

This procedure is associated with an unusually large fusiform callus formation at the fracture site which is almost characteristic of the operation. It is unusually large and in all the x-ray plates attracts immediate attention. It is believed to be due to the pin which in passing down the medulla may squeeze out marrow substance about the fractured ends like tooth paste, and this marrow substance may be responsible for the large callus formation which occurs in both the open and the closed reductions. Other theories are that it is due to the foreign body reaction or to intramedullary pressure. callus also appears earlier than usual and is seen in the x-rays in 2 to 3 weeks in most cases (Case 3, Figs. 11 and 12). This may be due to the fact that the procedure is one of impaction as opposed to traction in which we know the appearance of callus is delayed.

The pin is removed in three or four months or at later periods in pseudarthroses. Three pins that had been in varying periods were removed on one day of our visit. Because of shortage of pins they were removed as early as possible in order that they might be available for other cases, but at times the patient is well and busy and does not return for removal until it is convenient.

Removal is effected by a small incision over the site of insertion. The end of the pin is usually covered by a bursa formation or even a thin shell of bone. The hole in the pin is cleared, the hook attached and with the forked hammer it is hammered out. The pin on removal shows little or no evidence of rusting. It is usually withdrawn without forceful blows. In some cases it is firmly fixed, in others it is lightly held.

Insertion of tibial pins.—Epidural block is again used. The knee of the affected side is elevated on a support. The sterile screen is interposed between the operator stan.

knee with skin draping, and the assistant who manipulates the lower leg under the fluoroscope on the other side of the sterile sereen. Through of 15. a two ineh incision over the upper inner surface of the tibia a hole is made in the bone ½" by 1½" in size with the chisel or gouge. This opening is then made oblique so that the curved tibia pin may be started obliquely with the longitudinal concavity forward, and the groove open posteriorly. There is a handle fitted to the end of the pin and this is hammered as the pin advances down the medullary canal. In the case of the tibia no guide is used. When the

CASE REPORTS

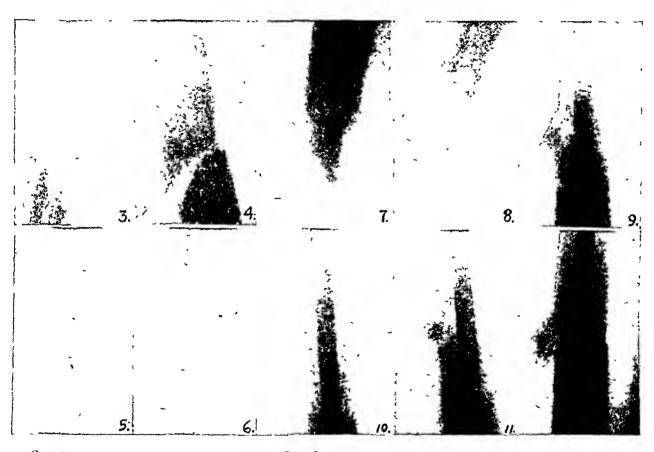
The following cases are taken from a series of 15

CASE 1

Female, aged 23 years. Transverse fracture shaft left femur November 17, 1945. Insertion Kuntscher pin November 22. Figs. 3 and 4 before and 5 and 6 after pin insertion.

CASE 3

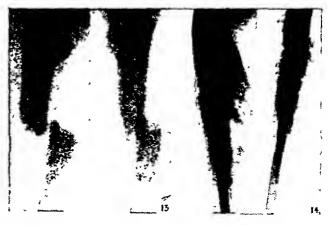
Male, aged 32 years. Transverse fracture femur November 1, 1945 (Figs. 7 and 8). Kuntscher pin November 6 (Figs. 9 and 10). Seen walking well with crutches and with knee flexion 90 degrees and showing early callus (Figs. 11 and 12) on November 20, 1945.



Case 1 Case 3

fracture line is reached the assistant attempts to reduce the fracture so that the pin may enter the medullary canal of the lower fragment.

Difficulties in reduction may be encountered and several attempts have to be made before reduction is satisfactory and the pin located in the lower fragment. A soft metal slab is placed under the pin and over the soft tissues to prevent impingement of the pin on the soft tissues. Thial pins are measured for length but are all of the same diameter. Tibial fractures are best held with a plaster from thigh to toes in addition to the pin to prevent rotation.



Case 5

CASE 5

Female, aged 22 years. Fracture of pelvis, concussion, transverse fractures of upper ends of both femurs May 3, 1944. X-ray May 25 (Fig. 13). Kuntscher pins inserted in both femurs May 26. X-ray August 31 (Fig. 14). Seen for pin removal November 21, 1945 with good functional result.

CASE 6

Male with delayed union of a fracture of lower third of tibia in which it was difficult to obtain closed reduction because of the callus and the pin inserted only caught the cortex of the lower fragment. However, with a plaster and walking he had obtained bony union.

CASE 7

Male, aged 27 years. Oblique fracture of middle of right femur August 7, 1945, Kuntscher pin inserted by open operation. In three weeks x-ray showed callus and in two and a half months he was back at work in his store and when seen by me November 12, 1945 he had 100% function.

CASE 10

Male, aged 20 years. Bilateral transverse fracture of tibia March, 1942. March, 1943, had pseudarthrosis and bone grafts held by 4 wires. Kuntscher pin May 15, 1944. Patient walked six months in plaster and six months without plaster and obtained union by bone. A small sinus is present with no sequestra to be seen.

CASE 11

Male, aged 28 years. Oblique fracture lower third tibia which at six months had delayed union. Pin was inserted and he was allowed to walk in plaster. Without plaster he could not have walked as with the wide medulla of the lower end a single pin does not give adequate fixation. Again, as the fracture was oblique without the pin he also could not have walked.

Case 13

Male, aged 23 years. Fracture right tibia and fibula August 11, 1944. Kuntscher pin August 15, 1944. On August 23, out of hospital walking with plaster. On October 20, started back to work. On November 22, when seen he had full function and was playing rugby and tennis.

CASE 14

Nurse, aged 19 years, with fragilitas ossium. Comminuted fracture of left humerus November 5, 1943. On March 11, 1944, x-ray showed delayed union. On March 13, tibial Kuntscher pin inserted in humerus. On May 31, 1944, all fractures solidly healed. On June 1, pin removed. When seen November, 1945, she had normal function.

Soeur also reports a number of cases in which this method was used in the humerus, when this pin was introduced from the upper end; and in the ulna, introduced from the oleranon; and in the radius, introduced from the lower end and dorsal surface. He concludes that it is suitable for all closed fractures of the humerus and that it is simpler and gentler than closed reduction in the forearm and preferable to plates.

The first case in America in which this method has been employed so far as we know was a man of 43 years of age. In 1936 he had fractured the middle of the right femur and after three months traction as well as plating of the frac-

ture had failed, he had had a bone graft. This had united but in November, 1945, he had fallen down two steps and re-fractured at the same site in the right femur. He had Kirschner wire traction from November to January and then a plaster spiea. But on removal of the plaster spica in March he had clinical and radiological non-union. On April 11 Dr. R. I. Harris operated on this patient. The fracture site was exposed and the sclerosed medullary eavity was drilled out of both fragments with a large drill. The guide was then passed up the medulla of the upper fragment to come out at the top of the greater trochanter. The skin was incised here and the Kuntscher nail was passed over the guide and driven down to the fracture line and then into the lower fragment. Cancellous bone grafts from ilium were packed around the fracture site and the fragments inpacted. A body The fragments were held spica was applied. firmly in anatomical alignment. His course was uneventful and he was discharged from hospital on April 29.

It was felt that the employment of this method in this case had produced results which were superior to those that would have resulted from any other method that might have been employed.

DISCUSSION

The principle involved is identical with that employed in the Smith-Peterson pin and if we accept the one we should be prepared to accept, in principle, the other. There is little shoek and minimum disturbance to soft tissues, even in open reduction where the soft tissues do not need to be eleared back with stripping of the periosteum as in plate or screw fixation. With this method, when reduction is effected the job is practically finished, whereas in most other methods of internal fixation the difficulties have just eommeneed. The early exuberant callus, whatever its cause, is a welcome result since it takes place in fractures at the locations where the surgeon dreads pseudarthroses.

Infection is a possibility as in any open reduction, but if compound fractures are not included it is no more to be feared and indeed may be less likely. No cases of extensive of compound the protection of penicillin and protection infection in that even without this protection infection in the a serious risk. R. K. Ghormley co

menting on the use of "gadgets" in orthopædic surgery states "The development of chemotherapy has made the use of various devices for internal fixation of fracture safer, so that many will be emboldened to increase the number of operations in which such devices are used." Occasionally the pin may be broken. sequestræ have been seen. No cases of fat embolism have been reported.

One disadvantage observed was the exposure to radiation that the assistant received in the manipulation of the closed reduction. hazard would have to be reduced to safe limits and indeed there is no reason why this may not be accomplished by resorting to the open operation in those cases not readily reduced by closed methods.

In the most carefully selected cases there was no question that the reduction was as complete and maintained more effectively than by any other method we have seen. In closed fractures of the middle and upper third of the femur it would appear to have advantages over any previous method. The special table, instruments, x-ray equipment, and selection of pins as well as the team work in technique make it a method applicable only in centres dealing with a large number of fractures. The accurate reduction, the adequate immobilization, the early restoration of function, are all desiderata of the fundamental principles of the treatment of fractures and with the curtailment of hospitalization will make a strong appeal for its use in selected cases.

SUMMARY

A critical study of the technique of the Kuntscher method of intramedullary pin fixation of fractures has been made. A number of cases so treated have been reviewed. Even granting that they were selected good results one is forced to conclude that the method has the advantages of adequately maintaining anatomical reduction while permitting an almost full function. It appears to have inherent features that promote unusually early and large callus formation and strong bone healing. This may be related to the impaction of fragments as opposed to traction in other methods. The technique is more detailed than difficult. There appear to be specific disadvantages not associated with of the ethods of internal fixation or open reducheld with a Ps. This method would appear to addition to the , the treatment of a specially

selected group of fractures in any centre where sufficient numbers of such cases are treated.

REFERENCES

- SOEUR, R. . Intramedullary pinning of diaphyseal fractures, J. Bone & Joint Surg., 28: 309, 1946.
 GHORMLEY, R. K.: Report of orthopædic surgery for year 1944, Proc. Staff Meet. Mayo Clin., 20: 363, 1945.
- KUNTSCHER, G.: Zentr. f. Chir., 67: 1145, 1910; 69: 1837, 1942.

CASE REPORTS

HYPERTROPHIC SECONDARY PULMONARY OSTEOARTHROPATHY (MARIE'S SYNDROME)

J. H. Duncan, M.D.

Sault Ste. Marie, Ont.

The patient eame under observation about a year before he died. He was a six foot Polish labourer of fifty years but looking younger, lean but strongly built. His complaint referred to certain indefinite pains in his legs especially in his knees. The medicine prescribed seemed to help him and he kept coming back for more. His command of English was insufficient to furnish a complete history but I knew that he did not stop working, and I also was aware that there had been some family trouble that was said to be due to his bad temper. His wife and family had left him.

I wondered at the size of his hands and heavy Out of curiosity I took an x-ray and found the surprising condition of all his long bones being enclosed in an outer layer of periosteal bone. After syphilis was ruled out by

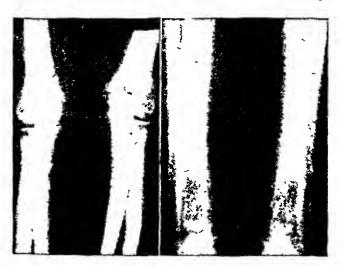


Fig. 1

repeated Wassermann tests which were negative, the condition seemed to fit exactly into the fol-

Fig. 2

^{*} We regret to record the death of Dr. Duncan since the receipt of his paper.

·lowing description of Marie's syndrome in Osler's Medicine:

"A symmetrical enlargement of the bones of the hands and feet and of the distal ends of the long bones occurring in association with certain chronic diseases particularly affections of the lungs."

On his next visit a chest film was taken showing a large dense shadow extending out from the hilus of the left lung, having the appearance of a tumour of the lung.

The skull was normal, and several urinalyses failed to show albumen, sugar or pus. The only noteworthy finding in his blood was a fourfold increase of serum alkaline phosphates.

Repeated examinations of his heart failed to show anything unusual until two months before his death. He was at work and was brought into the plant medical office in a state of collapse, with auricular fibrillation and dependent ædema. With rest in hospital he improved and was discharged, only to return in a few days with progressive heart failure, massive ædema of the legs and later patches of gangrene scattered from the hips to the toes.

An autopsy showed a chronic bilateral adhesive pleurisy and a large papillary adenocarcinoma of the left lung which microscopically resembled prostate tissue.

A CASE OF HYPERTROPHIC OSTEOARTHROPATHY*

W. B. Ayre, M.D.

Montreal, Que.

A patient in hospital under observation developed, in a comparatively short time, all of the classical features of hypertrophic osteo-A unique opportunity for the arthropathy. study of the development and progression of this unusual condition was thus afforded. The primary lesion proved to be a mediastinal Clubbing of the fingers, soft tissuc hypertrophy of the distal portions of the extremities, and characteristic changes in the long bones, became unusually marked within the short period of one month. X-ray studies over a subsequent period of nine months were possible and clearly demonstrate the rapidity with which extensive bony changes may occur in this disorder.

The patient was a 57-year old German prisoner of war. On first admission (April 17, 1945) he complained of swelling of the ankles, cough with sputum, pain in the ankles and knees while walking, and pain in the right wrist. The past history included an incident of trauma to the right chest in August, 1944, but was otherwise negative. He has made an uneventful recovery from this and there were no residual symptoms. In the family history it is stated that his mother died of viseeral carcinomatosis. The presenting complaints had begun in January, 1945, and although they were not markedly severe in character had been persistent throughout the four months prior to admission. On physical examination the only positive findings were a few râles at both lung bases, and a slight pitting ædema over the ankles. These symptoms and signs were in some measure suggestive of cardiac disease, but noticeably absent were a history of dyspnæa with effort and any sign of venous congestion.

X-ray of the chest revealed the heart to be of normal size. There was no evidence of congestive failure. But the presence of "a well defined area of increased density of approximately four centimetres in diameter adjacent to the right hilum and suggestive of a huge gland or tumour" was discovered. The blood picture. except for a markedly elevated sedimentation rate, was normal (Hgb. 83%, leucoevtes 10,900, sedimentation rate 88 mm. in the first hour). The blood Wassermann was negative. An x-ray of the right wrist was taken on April 25, 1945. The wrist joint was normal, but there were "irregularities of contour and thickening of the periosteum on the lower end of the radius" (Fig. 1).

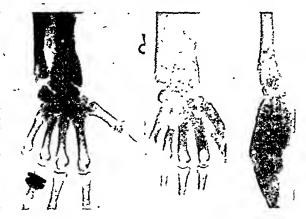


Fig. 1

Fig. 2

Fig. 1.—X-ray film of the right hand, April 25, 1945. The picture is relatively normal but for slight irregularities of contour and thickening over the lower end of the radius—early hypertrophic osteoarthropathy.

Fig. 2—X-ray film of the right hand, December 27, 1945. A heavy layer of new formed subperiosteal bone envelopes the distal end of the radius and ulna. The wrist joint is normal. There is marked irregular subperiosteal proliferation evident along the shafts of all of the metaearpals and all of the proximal and middle phalanges.

This in association with the pulmonary lesion was interpreted as early evidence of hypertrophic osteoarthropathy. Clubbing of the fingers was not evident at this time but developed shortly thereafter and within

a month was quite pronounced.

In June, 1945, it was decided that he should be repatriated and he was discharged from hospital. Repatriation proved impracticable, however, on other than medical grounds, and he was readmitted early in July, 1945 for further observation and x-ray therapy.

On his second admission his complaints were es sentially the same but the swelling of his hands and feet was much increased and the fingers and toes were markedly clubbed. An x-ray of the chest at this time

^{*} From the Montreal Military Hospital, Medical Division.

showed that there had been some increase in the size of the mediastinal lesion. On close study the appearance was suggestive of a bronchogenic carcinoma or a chronic granuloma. The sedimentation rate was 99 mm, in the first hour. The blood Wassermann was again negative. A course of deep x-ray therapy to the chest was given. Following this the patient improved symptomatically and both the patient and the attending physician noted a diminution in the clubbing and the soft tissue swelling of the extremities. After a further period of observation he was discharged August 10.

He was readmitted on December 18. At this time his complaints were cough with oceasional blood-streaked sputum, loss of weight, 10 pounds, swelling of the hands and feet, pain in the wrists, ankles and knees, and muscular weakness. The upper extremities exhibited marked clubbing of the fingers, unusual soft tissue hypertrophy of the hands, and an increase in the diameters of the wrists which was so marked that the usual tapering character of the forearm was entirely masked. (The diameter of the right thumb at the terminal phalanx was 8 cm., the diameter of the right hand at knuckles, 22.9 cm., and of the right wrist at the head of the ulna, 20.3 cm.) The clubbing of the fingers was further emphasized by large recurved finger nails. The base of the nail was hyperemic, the palms were thickened.

The lower extremities presented a similar picture. There was marked clubbing of the toes and the soft tissue hypertrophy of the feet and ankles was pronounced. (The diameter of the terminal phalanx of the right great toe was 10.1 cm., and of the right foot opposite the head of the fifth metatarsal 25 cm., and of the right ankle at the medial malleolus 29.4 cm.) The heart, lungs, abdomen, and external genitalia were normal on physical examination at this time. The prostate was normal on rectal examination. There was no evidence of central nervous system disease. It was particularly noted that there was no cyanosis and no other evidence on physical examination to suggest peripheral anoxia.

The chest x-ray picture was relatively unchanged. X-ray of the bones of the extremities at this time provided a gauge to the progression of the osteoarthropathy. It is usually stated that marked bony changes do not develop until after the primary disease has been active for two or three years. The changes found at this time were therefore somewhat surprising. All of the bones of the upper and lower extremities showed marked changes with the exception of the bones of the shoulder and pelvic girdles and the terminal phalanges and the small bones of the ankle and wrist. A comparison of the x-ray picture of the right hand at this time (Fig. 2) with that taken at the time of the first admission eight months previously (Fig. 1) illustrates the marked degree of subperiostcal proliferation which had taken place. Similar changes had occurred in the lower extremities.

The laboratory investigation revealed the following: Hgb. 88%; leucocytes 8,000; sedimentation rate 64 mm. in the first hour, sustained sedimentation rate 50 mm. in the first hour; blood calcium 10.8 mgm. %; blood morganic phosphorus 3.85 mgm. %; blood alkaline phosphatase 423 Bodansky units; blood acid phosphatase 1.35 Bodansky units; total plasma proteins 8.19 gm. % (albumen 5.87 gm., globulin 2.23 gm.); blood cholesterol 210 mgm. %; basal metabolic rate plus 13; vital capacity 3 litres. A glucose tolerance curve showed evidence of a slightly decreased glucose tolerance. The blood sugar values in milligrams percent were as follows: fasting 114; ½ hr. 189; 1 hr. 196 (trace of sugar in the urine); 2 hr. 171; 3 hr. 72. On routine ward diet there was no glycosuria.

HISTORICAL FEATURES

The occurrence of soft tissue and bony changes in the extremities in association with addresonary and cardiac disease was first recog-

nized by Bamberger in 1889. In 1890, Marie² presented several cases with a descriptive accuracy which has not since been excelled, and suggested that this condition be called "pulmonary hypertrophic osteoarthropathy". That it occurs in visceral disease other than pulmonary is now clearly established and it is therefore referred to as hypertrophic osteoarthropathy. Locke in 1915 made a notable contribution to the clinical study and pointed out that simple clubbing, which is much more common, is in essence an early form of hypertrophic osteoarthropathy. Mendlowitz⁴ in 1942 made an extensive survey of the literature.

ETIOLOGY

Hypertrophic osteoarthropathy may occur at any age. It is much more common in males. It is, with possible rare exceptions, always secondary, the primary disorder being some chronic affection of the viscera. Changes are seldom, if ever, associated with disease ontside the thoracić or abdominal cavities. The visceral lesion is usually pulmonary (bronchiectasis. empyema, tuberculosis, and neoplasm being the commonest lesions) but may be cardiac. or gastro-intestinal. The typical lesions have occurred in association with all types of pulmonary disease-septic, toxic, degenerative, neoplastic, or lesions causing merely mechanical irritation of the lungs or pleura. Congenital heart disease with cyanosis, or subacute bacterial endocarditis are the commonest primary cardiac disorders. Congenital heart disease without cyanosis will not produce the changes. Chronic hypertrophic biliary cirrhosis has been reported as the primary condition in several cases. The full picture may also develop when splenomegaly and hepatomegaly due to chronic disease (c.g., malaria or amyloidosis) coexist. Cases are also reported in association with chronic gastro-intestinal disorders characterized by severe diarrhœa or vomiting, e.g., chronic ulcerative colitis or chronic pyloric obstruction.

The underlying mechanism in the production of these unusual bony and soft tissue changes in such widely varied conditions is not yet understood.

COMMENT

The present case conforms in detail with the classical description of hypertrophic osteoarthropathy as first presented by Marie. The

marked clubbing, soft tissue changes, large nails with hyperæmic nail beds ("une coloration rose foncée assez manifeste''), deep palmar creases, and enlarged wrists, with comparable changes in the lower extremities, are all typical. The case was somewhat unusual, however, in the manner in which the secondary changes developed and the rapidity with which they progressed. As a rule clubbing of the fingers develops as an early manifestation and bony changes occur subsequently. Bony changes do not usually become pronounced until after two to three years. In the present case early bony changes were discovered before there was clinical evidence of clubbing and in eight months the bony changes were widespread and very pronounced.

It is also surprising that the primary disease appeared clinically to be virtually quiescent throughout. The patient complained of a mild chronic cough and occasional blood streaked sputum but there was little or no other evidence of chest disease. Nor can the unusual rapidity with which the secondary features progressed be related to any apparent exacerbation of the pulmonary disease. Throughout the eight months during which widespread subperiosteal changes were taking place, he was entirely afebrile. The mediastinal mass did not _appear to increase appreciably in size. was a ten pound loss of weight but otherwise the patient's general condition appeared good. The vital capacity was three litres—somewhat diminished but adequate. There was no evidence of peripheral anoxia. From the investigation there did not appear to be any appreciable alteration in general metabolism. It is also difficult to explain in any way the mechanism of the development of the osteoarthropathy in this case. The absence of any evidence of anoxia has been referred to above. The patient did not appear to be suffering from chronic toxemia. It can only be said that in some way a disease process affecting the viscera was demonstrating its existence by these unusual peripheral (somatic) manifestations: that this is a viscero-somatic condition.

SUMMARY

A patient with a mediastinal tumour developed all of the classical features of hypertrophic osteoarthropathy while under observation in hospital. It was thus possible to follow the development and progression of this unusual condition. The

rapidity with which soft tissue and pronounced bony changes occurred; the fact that bony changes preceded clubbing; the apparent quiescence of the primary disease during the period in which widespread very marked secondary changes occurred; these were the unusual, particular features of this individual case. was no apparent explanation for the causal relationship between the primary disease and the secondary manifestations.

I would like to thank Lient. Col. G. W. Halpenny, Chief of Medicine, and Major W. Gill, Chief of the X-ray Department for their kind advice and co operation in the preparation of this paper.

REFERENCES

- 1. VON BAMBERGER, E.: Wein. klin. Wchnschr., 2: 226, 1889.
 2. Marie, P.: Revue de Médicine, 10: 1, 1890.
 3. Locke, E. A.: Arch. Int. Med., 15: 659, 1915.
 4. Mendlowitz, M.: Medicine, 28: 269, 1942.
 5. Conpere, E. L., Adams, W. E. and Compere, C. L.: Surg., Gym. & Obst., 61: 312, 1935.
 6. Craig, J. W.: Brit. M. J., 1: 750, 1937.

BENADRYL IN TREATMENT OF MUCOSAL RESPIRATORY SYNDROME

C. B. Schoemperlen, M.D.

Winnipeg, Man.

This syndrome (Stevens-Johnson disease) has been described under various titles including ulcerative stomatitis, muco-cutaneous fever, etc. It is essentially a severe prostrating illness with superficial, painful ulcerative lesions of the mucosa of the mouth and genitalia, conjunctivitis, coryza, pulmonary inflammation and occasionally skin eruptions. There is usually a prodromal period before the onset of the stomatitis which progresses with lightning-like rapidity; also there is a considerable tendency Chemotherapy has had no apto recurrence. parent effect on the course of the disease; blood transfusions have been noted to effect a favourable response in some cases; but to date specific therapy has been reported.

The sudden and rather widespread muc involvement suggested to me that the syndrom might be due to an allergy or hypersensitivity. With this in mind it was decided to try the effect of benadryl on the following case.

An office clerk, male, aged 34 years, gave a past history of having been hospitalized for 19 days in 1938 because of a similar condition to his present one. Hospital records gave the following information: sore throat, slight cough, some malaise one week, when a Scotember 15, 1938, he noticed blisters in the moniac later the same day there were blisters on the penis scrotum.

Admitted to hospital September 16, very ill; tem ture 103.6° F.; conjunctivitis; lips and tongue thic

and adematous; vesicles and ulceration of the lips and buccal mucosa plus a greyish white membrane in the mouth, on the tongue, pharynx and tonsils. There were similar lesions on the penis and scrotum with a white discharge on the glans penis; 'crepitations were heard in the right chest at the base.

Laboratory findings on admission were: leucocytes 25,150, 74% polymorphonuclears, 16% lymphocytes, 7% monocytes, 2% eosinophils, 1% basophils, hæmoglobin 99%, erythrocytes 5,500,000. Blood Wassermann negative, blood culture negative, urine negative, smear from throat showed mixed approximate culture floatile. throat showed mixed organisms, culture Staph. aureus and non-hamolytic streptococcus.

He was treated with prontosil intramuscularly, prontylin orally, and remained very ill for six or seven days when he slowly improved, temperature fell by lysis until it was normal on October 2, and he was dischargedhome on October 4, recovered, but with a phimosis.

The patient is unmarried, has no known family history of allergy, nor of a similar disease and has no history of other allergic phenomena. He had since remained well until the present episode which is described briefly as follows: Went to bed August 30, 1946, with fever, cough and backache; thought it was "fln", recovered, went to work September 2. At supper September 3, at 5.00 p.m. when he noticed his throat to be slightly sore. - At 8.00 p.m., the throat was worse, gums began to ache and felt swollen, swallowing was painful. About midnight blisters were forming in his mouth, at 1.00 a.m. September 4, eyes began to water, penis began to itch and burn, mouth was worse, increasing cough. At 2.30 a.m., September 4, admitted to hospital. At 3.00 a.m. started on penicillin 15,000 units intramuseularly, q, 3 h.

At 10.00 a.m., anus was itehy and burning.

I first saw the patient at 12.00 noon, September 4.

Temperature 99°, pulse 88, respirations 24. He looked rather apprehensive, complained of feeling very weak, was a somewhat ashen grey colour, considerable con-junctival injection and ædema with a serous discharge, nasal mucosa red and ædematous, lips swollen, numerous vesicles on buccal, gingival, palatal, faueial and lingual mucosa up to 5 mm. in diameter, intervening mucosa covered with a greyish white membrane and there were a few small superficial mucosal ulcers; several teeth were carious; similar lesions were noted on the glans penis. There was no urethral discharge. The anus was tender and the nincosa possibly edematous but no ulcers were seen. There were a few inspiratory and expiratory rhonchi heard throughout the chest with some post-tussic

râles in right base posteriorly. No skin lesions.

Urine was negative, hemoglobin 102%, red blood cells 4,190,000, leucocytes 9,050, polymorphonuclears 69%, lymphocytes 29%, monocytes 1%, basophils 1%. Culture from lesions in mouth later showed streptococci and staphylococci, negative for K.L.B.

At noon on Soutember 4 he was size 100 members 4.

At noon on September 4, he was given 100 mgm. benadryl orally, to be repeated twice more that day and thereafter 100 mgm. t.i.d. During the afternoon the patient noticed no change. On the morning of September 5, the anal itch and irritation had disappeared and his eyes felt better. On examination his eyes looked improved, many more of the vesicles in his mouth had ulcerated, and the mouth looked worse, but the patient said his mouth was feeling a little easier but that he could not chew nor swallow.

The lesions on his penis were beginning to ulcerate, there were no rhonchi in the chest, there were still a few post tussic râles in right base, the cough was less severe. That night the penile irritation ceased. From then on there was steady improvement. Benadryl was reduced to 50 mgm., t.i.d. on September 9, and the patient was discharged. He returned to work at once and here been well since

has been well since.

Th Although one eannot draw definite eouelusions change in days from a disease which usually requires to six weeks hospitalization suggests that

benadryl may have been responsible and warrants further trial of this drug in future eases. It is-felt that the penieillin had no bearing on the response as it has produced no noticeable results in the past but was continued here with the hope that it might be helpful in preventing any severe pulmonary complications from secondary infection.

BIBLIOGRAPHY

- 1. Walton, C. H. A., Graham, H. M. and Lansdown, L. P., The Lancet, 2: 214, 1941.
- 2. STANYON, J. H. AND WARNER, W. P.; Canad. M. A. J., 53: 427, 1945.
- 3. HADDAD, N. N.: J. Canad. Med. Se., 2: 657, 1945.

GANGRENOUS OVARIAN CYST IN A CHILD OF FOUR, AND RUPTURE OF THE HEART

E. R. Selby, M.D.

Calgary, Alta.

The two following eases are thought worthy of record.

CASE 1

G., a child of four, of Anglo-Saxon parentage, was in excellent health and with no history indicating abdominal disease until August 1, 1944, when she complained of distress high in the abdomen, became nauseated and vomited bilestained fluid.

There was emesis at intervals on the next day, and some disturbance though to less extent on the third day. On August 4 she was apparently well, ate normally and had a natural bowel movement that was normal in appearance. She eried with pain a good deal that night, and would accept only fluids next day. She vomited again this day. Seen on August 5, the child was lying down, but very contented, smiling, and talking freely, taking light fluids freely but not wanting food. She said she had no Examination was negative except for slight resistance in the right mid-rectus area. No objection was made to deep palpation here, or elsewhere and no mass or resistance was found, temperature 100.8, pulse 96. examination was not made.

On the 6th the report was another bad night,. at intervals erying with abdominal pain. Seen in forenoon, the temperature was 99.4°, and there was some definite resistance in the region of the right mid-rectus. The child stated she felt well, had no pain, but did not want food.

She was taking light fluids freely. Admitted to hospital in the forenoon.

On admission the temperature was 101.2°, White blood eells 20,300, polymorphonuclears 73%. Five hours later white blood cells 23,000, polymorphonuclears 83%. Laparotomy in the afternoon showed the following: The subcutaneous fat was unusually There was some free intraperitoneal The appendix was found disappearing downwards to the left pelvis, moored and buried in adhesions that extended aeross the whole pelvis. Appendectomy was done. The appendix itself was inflamed, probably from external contacts.

Exploration of the pelvic adhesions showed a gangrenous eyst of the left ovary, with two complete rotations in its pedicle. This gangrenous mass was removed. It was 8 centimetres in diameter and contained fragments of seven teeth, bone and sebaceous material. No trace of remaining ovarian tissue was recognized in the left pelvis. The right ovary showed no suggestion of cystic formation.

The abdomen was closed without drainage. Recovery was uncomplicated, and patient went home on August 16.

CASE 2

K., aged 70, male, white. This patient was first seen in the night of January 3, 1946, complaining that he had been unable to lie down to sleep for a week as he then could not get This had followed a flu attack. his breath. Previously he had lived for years in an isolated northern district, and had not consulted a doctor. He had suffered with transient attacks of astlima.

On examination he was found to be short of There were signs of slight bronchitis; the heart left border was inside the nipple line in the 5th interspace, rate about 96. There was an aortie systolic blurring. Systolie blood pressure approximately 140 though he was definitely He was given digitalis and arteriosclerotic. heroin, and slept well in a low Fowler position.

as given after the second day. a level bed and was discharged The blood pressure was then

ce three days later, feeling well, th. He stated he was leaving the city in a few days and promised to go under medical care at once on arrival at his future Between then and February 5, it is stated that he had remained in the city, that he was continuously and actively about, though not working, that he smoked a great deal and coughed a great deal. On February 5 he returned to his home about 5.00 p.m., complaining of desperate distress in the chest, and stating he had a terrible time getting home; did not know how he got there. He would not sit down, but kept walking constantly to and fro. Becoming steadily worse, he was sent to hospital by taxi, arriving about 6.30 p.m.

On arrival he was dysnæic, cyanotic and had a fast, irregular pulse. He was coughing and perspiring profusely. He was put to bed on a double-inclined plane, and oxygen was started. When I saw him about 7.00 p.m. he was semiconscious, suffering acute air hunger, absolutely drenched in perspiration and with an irregular pulse of about 180. The oxygen was increased and digitalis 1/100 and heroin 1/6 was given intramuscularly. In about 15 to 20 minutes the breathing was quiet, the pulse down to about 100, and he went to sleep. Heroin 1/12 was given at midnight and at 8.00 a.m.

He slept fairly well. In the morning he seemed brighter but did not speak or attempt reply. In the afternoon he did not apparently recognize his family. He had a fair night again. heroin 1/12 being required approximately q. 8 h. for dyspnæa and restlessness throughout this period. He was conscious this second morning, recognizing mc, answering in short sentences but tending to mentally-wander. The blood pressure was 116/84. The heart rate was steady. During the forenoon dyspnæa steadily increased, sphineter control failed, the pulse became more rapid, the respirations were rapid and irregular. Death occurred at about 4.45 p.m., presumably about 49 hours after the onset of the acute intrathoracic distress.

Autopsy performed by Dr. L. McLatchie showed the myocardium to be mode with fluid blood. There were two lower part of the left ventricle, one long, the other 3/8". These lay in adjoining sulci separated by the The ruptures chorda tendinæ. through, not dissecting laterall, wall in all this area was ex

MIDY'S PROVEINASE

For DISORDERS of the VENOUS CIRCULATION

DISTURBANCES of the MENOPAUSE and at PUBERTY

Associating medicinal action of thyroid, supra-renal and hypophyse glands with already known effects of Hamamelis, Viburnum, Indian Chestnut, Cupressus sempervirens and the veno-constrictive action of gorse.



2 to 6 tablets per day.

LABORATOIRES MIDY

PARIS - MONTREAL

Agents for Canada: VINANT Ltd., 200 Vallée Street, MONTREAL

AM SREAGENT ABLES



CLINITEST

For Qualitative Detection of Urine-Sugar

Clinitest is the latest improvement on copper-reduction tests. The reagent tablet is dropped in diluted urine and heat is self-generated. Supplied in bottles of 100 or 250 for hospitals, in laboratory outfits and pocket-size plastic sets for physician and patient.

ALBUTEST (Formerly Albumintest)

For Qualitative Detection of Albumin

A rapid, dependable test – nonpoisonous, noncorrosive and requires no heat. Albutest Tablet when dissolved in water provides the reagent solution for detecting albumin by turbidity or contact ring technics. Adaptable to all laboratory uses. Easily carried by physicians and public health workers. Supplied in bottles of 36 and 100 tablets.

HEMATEST

For Qualitative Detection of Occult Blood

A simple and reliable method for detecting occult blood in feces, urine and other body fluids. Specimen is placed on filter paper and Hematest Tablet is placed in center of moist area; two drops of water are placed on tablet. Blue coloration of filter paper indicates the presence of blood. Very useful for physician, public health worker and laboratory technician. Supplied in bottles of 60 tablets with filter paper.

Ames' Products are available through regular drug and medical supply channels. Literature on request.

Sole Canadian Distributor: FRED J. WRITLOW & CO. LTD., "S" Bldg., Malton, Ont.

AMES COMPANY, INC. Elkhart, Indiana, U.S.A.

DETECTION OF URIN

SUGA

DETECTION OF

ALBUM

DETECTION OF

BLOO



Try Pablum on Your Vacation

Vacations are too often a vacation from protective foods. For optimum benefits a vacation should furnish optimum nutrition as well as relaxation, yet actually this is the time when many persons go on a spree of refined earhohydrates. Pablum is a food that "goes good" on camping trips and at the same time supplies an abundance of calcium, phosphorus, iron, and vitamins B and G. It can be prepared in a minute, without cooking, as a breakfast dish or used as a flour to increase the mineral and vitamin values of staple recipes. Packed dry. Pablum is light to carry, requires no refrigeration. Easy-to-fix Pablum recipes and samples are available to physicians who request them from Mead Johnson & Company, Evansville. Indiana

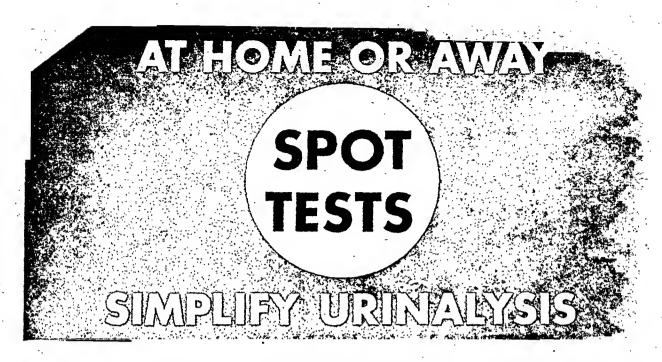
DE COLLECTEM



JUNE 23 TO JUNE 27!

Here are the Manito's Parliament Buildings in Winnip 2—that fire city in which the General Manager of the Medical Andit had the pleasure of living for word years So we K-N-O-W from experience that all our doctors who will be at the Annual Meeting of the Canadian Medical Asociation are going to enjoy themselves!

THE MEDICAL AUDIT ASSOCIATION
44 Victoria Street, Toronto 1



NO TEST TUBES . NO MEASURING . NO BOILING

Diabetics welcome "Spot Tests" (ready to use dry reagents), because of the ease and simplicity in using. No test tubes, no boiling, no measuring; just a little powder, a little urine—color reaction occurs at once if sugar or acctone is present.

Galatest.

FOR DETECTION OF SUGAR IN THE URINE

Acetone Test (DENCO)

FOR DETECTION OF ACETONE IN THE URINE

THE SAME SIMPLE TECHNIQUE FOR BOTH

I. A LITTLE POWDER



COLOR REACTION IMMEDIATELY

2. A LITTLE URINE



A carrying case containing one vial of Acetone Test (Denco) and one vial of Galatest is now available. This is very convenient for the medical bag or for the diabetic patient. The case also contains a medicine dropper and a Galatest color chart. This handy kit or refills of Acetone Test (Denco) and Galatest are obtainable at all prescription pharmacies and surgical supply houses.

Accepted for advertising in the Journal of the A.M.A.

WRITE FOR DESCRIPTIVE LITERATURE

MARAMOO DINUTUPACUTANI AROMEND SEVINED ENT.

In treating Para-nasal Infection

Bacteriostatic Decongestion is the MEANS Restoring Normal Function is the GOAL

with ARGYROL

the Decongestant without Rebound Action

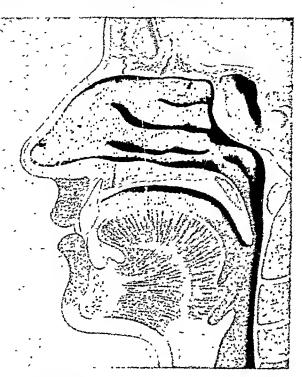
In recent literature emphasis is being given to the after effects that frequently follow use of vasoconstrictors because of their rebound action.

Such untoward results do not accompany the use of ARGYROL, the bacteriostatic decongestant that

AVOIDS THAT VICIOUS CIRCLE

When the physician uses ARGYROL he knows that he is contributing most to recovery through support of nature's own First Line of Defense.

The cleansing, demulcent, bacteriostatic action of ARGYROL is attained by its three-fold action.



Three-Fold Action of ARGYROL:

- 1. ARGYROL is decongestive, without irritation to the membrane, and without ciliary injury.
- 2. ARGYROL is powerfully bacteriostatic, yet is non-toxic to
- ARGYROL stimulates secretion and cleanses, thereby enhancing Nature's own first line of defense.

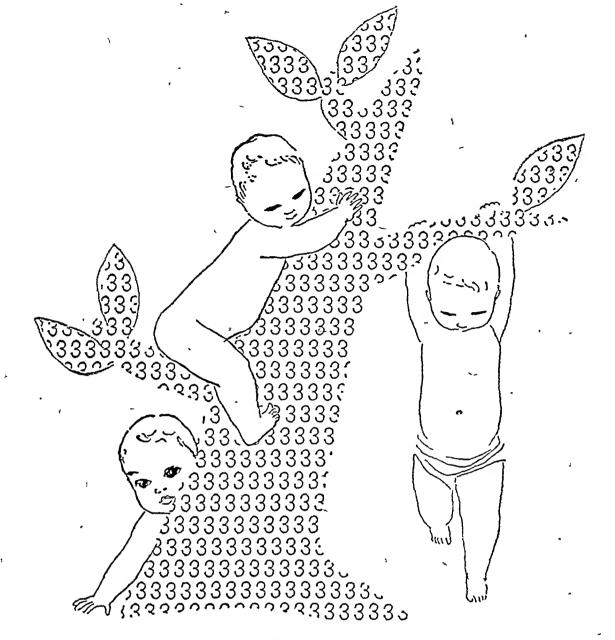
Three-Fold Approach to Para-nasal Therapy:

- The nasal meatus... by 20 per cent ARGYROL installations through the nasolacrimal duct.
- 2. The nasal passages . . . with 10 per cent ARGYROL solution in drops.
- The nasal cavities...with 10 per cent ARGYROL by nasal tamponage.

ARGYROL the Physiologic
Anti-infective with broad, sustained action



Hade only A. C. BARNES COMPANY LIMITED, Ste. Thérèse, Que.
ARGYROL ha registered trade earl, the property of A. C. BARNES Company Limited



babies grow on threes...

From infancy through late childhood, the average dose of Navitol with Viosterol is only three drops daily. This modern three-drop dose assures anti-rachitic protection for the normal child throughout the active growth period.

The maximum potencies of concentrated Oleo-

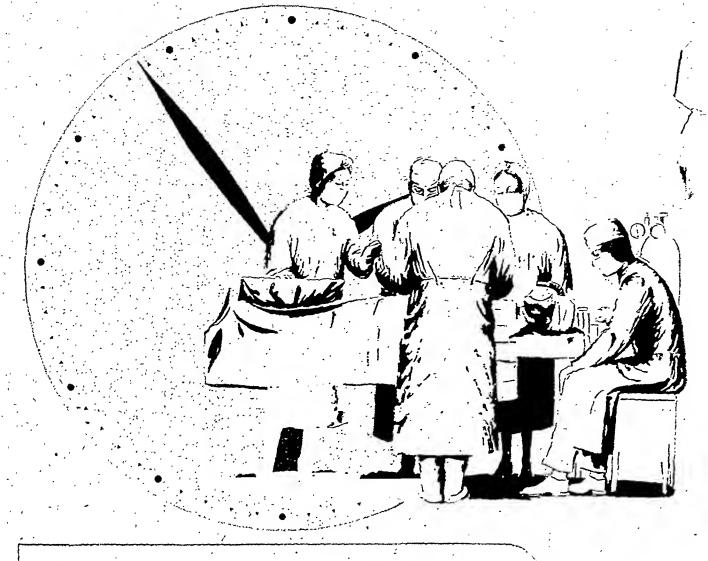
For literature write: E. R. Squibb & Sons of Canada Limited 36-48 Caledonia Road, Toronto,

SQUIBB

vitamin A and D specified in U.S.P.XII—5000 U.S.P. units of vitamin A and 1000 U.S.P. units of vitamin D—are supplied in three drops. So palatable, Navitol can be placed right on the baby's tongue, if desired. So nearly odorless, it is an instant hit with mothers. And economical! The three-drop dose costs only half a cent a day!

TRADEMARK
WITH VIOSTEROL

1//



Trauma reduced ... operating time cut

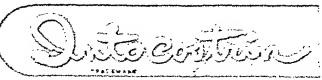
"With good relaxation, trauma can be reduced and operating time cut down. Post-operative complications incident to prolonged an esthesia can likewise be reduced." 1

Intocostrin, administered intravenously, facilitates operative procedure by producing abdominal relaxation and intestinal recession without deep anesthesia . . . through a

readily reversible myoneural block. Intocostrin is a purified, standardized extract of chondodendron tomentosum, a selected plant yielding the curate principle. In surgery, it has been used to advantage with cyclopropane, ether, nitrous oxide, ethylene and intravenous barbiturates.

,1. Schlesinger, E. R.: Am. J. Med, 1,518 (Nov.) 1946.

SQUIBB



MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858
For Literature scrite

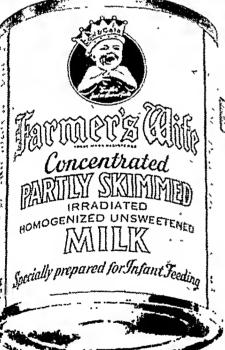
E. R. SQUIBB & SONS OF CANADA LIMITED + 36-48 CALEDONIA ROAD + TORONTO



PARTLY SKIMMED MILK FOR BABIES . . .

VLOWER FAT CONTENT

V HIGHER PROTEIN VALUE



The higher Protein-fat ratio in "Farmen's Wife"—its increased Vitamin "D" Potency of 400 International Units per reconverted quart—and its lower fat content (2% when reconstituted) . . . all make it an ideal milk for the artificial feeding of infants.

Babies find it easier to digest, and both delicate and normal babies thrive on "Farmer's Wife" Milk. Its higher irradiation also assures better protection against rickets, and it helps good bone and tooth development and aids in the growth of infants and children.

All Milk used in "Farmer's Wife" is produced in a Tuberculosis Accredited Free Area.

Please write for literature and poeket formula card.



COW & GATE (CANADA) LIMITED

GANANOQUE, ONTARIO

Charles Survey

- 1. Benzyl benzoate is "sure death" to the mites.
- 2. Pleasaut "fruity" smell of benzyl benzoate, instead of the steach of hydrogen sulphide.
 3. Twenty-four hours completes the treatment.
- 4. Water soluble base, instead of grease and wax to wash from body and clothing.
- 5. The base contains both hydro-philic and lipophilic agents to ensure thorough penetration of the ointment.

CABIOI CREAM

Supplied in 4 oz. and 1 lb. jars. Alsa available: Scabiol liquid in pounds, winchesters and gallons.

THE E.S. SHUTTLEWORTH CHEMICAL CO., LTD. TORONTO,



Belayed Schedule-1969

It's comforting to know that this kind of delay rarely affects your heavy schedules today.

But although times have changed, certain sentiments remain unchanged—for instance, friendliness to Ivory Soap. For nearly sixty years, many doctors have recognized Ivory as a soap of such purity and mildness they do not hesitate to recommend it.

Today Ivory is, naturally, an even better soap than it was at the turn of the century. Now

quality control. You may be sure that Ivory Soap is as pure as fine Castile. Continuing studies at Procter & Gamble's great Skin Research Laboratory double-check Ivory's mildness in use.

That's why, for three generations, so many doctors have told mothers, "To bathe the baby, use a pure, mild soap, such as Ivory."

MADE IN CANADA



99#3% Pure - - - It Floats



TINEACIDE

An antiseptic Ointment for

Athlete's Foot

Dhobie Itch

and other forms of ringworm.

Tineacide contains: 2% Isothymol

10% Safrole

1% Ti-Tree Oil

3% Benzocaine

Complete literature supplied on request

THE ALLEN & HANBURYS CO. LTD.

LINDSAY, ONTARIO

LONDON, ENGLAND



"We're playing up to you, Doctor!"

"'S far as we kids are concerned you're Number One on our hit parade.

"An' it's 'cause you sure treat us right . . . you all agree that a laxative for infants and children must meet what you call 'certain qualifications.'"

Most doctors today do agree on the fundamental requirements of modern baby care. As an instance, medical surveys show that physicians insist that a children's laxative should be: mild...effective... pleasant-tasting... not griping... not harsh or upsetting.

Castoria, the laxative made especially for children, has every one of those desired qualities ... due largely to the valuable senna ingredient it contains. Because it is pleasant-tasting and mild, the child takes it without being forced ... its liquid form enables the physician to regulate

the dosage accurately.

Senna, while especially suitable when a laxative is indicated for infants and children, has one disadvantage in its natural state. Despite its mildness and the many pharmacological advantages so well known to the profession, it has the tendency to produce griping.

Disadvantages of Senna Overcome

Studies by the makers of Castoria have established that this is caused by resins in the senna leaf. In Castoria a special process has been developed for extracting the active principles of senna leaves without the resinous materials... and without impairing the laxative efficiency. The active laxative ingredient of Castoria is this specially treated senna, from which the griping resins have been eliminated.

A Postal Card will bring you a free sample of Castoria

INDEX TO ADVERTISERS

INDEX TO A	DVERTISERS _{F3}
PAGE	
Abbott Laboratories xxxi, xxxii	Johnson & Johnson Ltd.
n & Hanburys	Lafayette Laboratories
an Cystoscopexlviii	Lakeside Laboratories
es & Colxxvi	Lavoris Chemical Co
Anglo-Canadian Drug Co. lx Anglo-French Drug Co. i	Lederle Laboratories xiii Lewis & Co., H. K. xxxiii
Armour Laboratoriesxliii	Libby, McNeill & Libby
Ayerst, McKenna & Harrison xxxvii, xxxviii, 701	Lippincott Co., J. B Front Cover, 707
Bank of Montreal XXXiv	Macmillan Co. of Canada. : xxxiii
Barnes & Co	Mead Johnson & Co. of Canada Outside Back Cover
Battle Creek Sanitarium xxxvi Baxter Laboratories lxix	Medical Audit Association, lxxvii Medical Correspondencexxvi
Bayer & Co.	Merck & Co. vi
Becton, Dickinson	Merrell Co., Wm
Borden Co	Metal Fabricators
British Drug Houses. xxiv	Midy Laboratories lxxvi
British Felsol Inside Back Cover British Medical Association ii	Mowatt & Moore Ltd
Burroughs, Wellcome & Co	N.Y. Polyclinie Medical School xxxix
Camp & Co., S. H. xlvi	Parke Davis & Coxxx
Canada Starch	Phillips Milk of Magnesia xli
Canadian Kodak Co. Ltd 703	Poulenc Frèresiii
Canadian Medical Protective lxxiii	Prévost San xl
Centaur Co	Proeter & Gamble Co
Ciba Co. Ltd. , xliv	Reckitt & Coleman
Classified Advertisements xxxiv, xxxv	Rougier Frères v
Clay-Adams Co. Inc.:lxxii	Royal College of Physicians & Surgeons XXXIX
Coca-Colalxxv	Royal Victoria Hospital
Connaught Laboratories	Ryerson Press xxxiii
Cow & Gate	Schenley Laboratories
Cream of Wheat xxiii	Schering Corp. Ltdxlix
Davis & Geek	School of Hygiene xxxiii, xxxvi
Denver Chemical Co	Sharp & Dohme Ltd
DesBergers Ltd	Shuttleworth Co., E. B xii, lxxxiii
Dewey & Almy lxxiv	Singer Sewing Machine
Dominion Oxygen Co. xxvi	Smith, Kline & French xviii
Duncan Flockhartlxxi	Spencer Corsets (Canada) Ltd
Eddé Ltd., J lxxi	Squibb & Sons, E. R
Eli Lilly & Co Inside Front Cover	Starkman Chemists
Fellowship of Medicinexxvi	Stearns & Co., Frederick xxvii
Frost & Co., Chas. E. xix, xx, xxi, xxii	Swift Canadian Coxxviii, xxix
Gallia Laboratories	Synthetic Drug Co
Gerber xiv	Tailby-Nason Co
Gomeo Surgical Mfg. Co	5 mar and
Hanger Limb Co. lxx	•
Herts Pharmaceutical Co	Wampole & Co lxxii
Homewood Sanitariumxl	White Laboratories
	1
	Wingate Chemical vii
Hudnut, Richard xlvii Ingram & Bell xlviii, lxvii, lxix, lxxi	Wyeth & Bro. (Canada)
• •	X-ray & Radium Luminous Industries Ivin
Iodine Educational Bureau Inc lxxiii	Zenith Radio !!
PLEASE MENTION THE JOURNAL	WHEN WRITING ADVERTISERS

TRY OR S

The Aristocrat
of Mouth Washes

There is no substitute for absolute mouth cleanliness

Intoxic, smaller dosage

intestinal sulfonar

for treatment

of colon infections!

SULFATHALIDINE' phthalylsulfathiazole is something new in the field of enteric bacteriostasis . . . a nontoxic intestinal sulfonamide which is remarkably effective in smaller
dosage. • A recent development of the Medical Research Division of Sharp & Dohme,
'Sulfathalidine' phthalylsulfathiazole has demonstrated its therapeutic value in the treatment of colon infections in an average daily dose of only 0.05 Gm. to 0.1 Gm. per kilogram
of body weight. • This new intestinal antiseptic maintains a high concentration in the
gastrointestinal tract where its bacteriostatic action markedly alters the bacterial flora.
An average of only 5% of the ingested drug is absorbed from the bowel and this is rapidly
excreted by the kidneys. • 'Sulfathalidine' phthalylsulfathiazole is indicated in the treatment of acute and chronic ulcerative colitis . . regional ileitis and ileojejunitis . . and
as an adjunct to intestinal surgery. • Supplied in 0.5-Gm. compressed tablets in bottles
of 100, 500 and 1,000. Sharp & Dohme (Canada), Ltd., Toronto 5, Ontario.





ARE WHOLLY OR PREDOMINANT-LY ENGAGED.

Signature and address of Doctor making this reply.

As the statement accompanying the plebiscite clearly indicates, the medical profession in the British Isles are now facing the most crucial test in their history. If they refuse to negotiate, the Government will be under the necessity of working out the Regulations by itself. According to the B.M.A., it would then be very difficult to put the scheme into effect because the Doctors would not work it. On the other hand, if the Doctors decide to negotiate, it would seem reasonable to assume that they would have some influence on the content of the Rules and Regulations and they would still have the right to refuse to operate the Act if they did not approve of the Rules and Regulations. Accordingly, there are two schools of thought in the profession with respect to the Act. "all-against" say, "Have nothing to do with it; do not negotiate". The more cautious say, "Let us negotiate in the hope that rules and regulations may be devised under which we can satisfactorily practise".

The whole world-certainly the medical world—is interested in watching the health legislation which is being developed in the British Isles. Without a doubt, the medical profession there are at the cross roads and a socialist government which is pledged to nationalize banks, transportation, mines and medicine is directing the traffic. The British Medical Association has 53,000 members, representing about 80% of the medical population of the British Isles, and a large majority of the profession appear to place implicit faith and confidence in their Association to lead them successfully through the present crisis.

Having discussed thus far what might be described as the implications of the Act, it would now seem appropriate to review it. I am indebted to the Negotiating Committee of the British Medical Association for having provided me with the following information. It is fairly lengthy but, because of its great importance and interest to the medical profession, it has been considered wise to present it in full. It is considered that the numbering of paragraphs will facilitate reference to the various sections of the summary.

A SUMMARY OF THE NATIONAL HEALTH SERVICE ACT

1. The Act places a general duty upon the Minister of Health to promote the establishment in England and Wales of a free, comprehensive health service designed to secure improvement in the physical and mental health of the people, and the prevention, diagnosis and treatment of illness.

The Act deals only with the main structure of the service. Its detailed administration will be governed by Regulations to be made by the Minister under the powers which the Act confers upon him.

The main provisions of each part of the Act

are summarized below.

PART I. CENTRAL ADMINISTRATION

2. The Minister of Health is given general responsibility for the organization of the service. To provide the Minister with professional and technical guidance there will be established a Central Health Services Council and the

Standing Advisory Committees.

The function of the Central Council is to advise the Minister upon such general matters as it thinks fit relating to the services provided. under the Act or any services provided by local health authorities in their capacity as such authorities, and upon any questions referred to the Council by the Minister relating to those services.

3. The Council will consist of 6 ex-officio members, and 35 other members appointed by the Minister. The ex-officio members are the persons holding for the time being the offices of:

President, Royal College of Physicians, London:

President, Royal College of Surgeons, England:

President, Royal College of Obstetricians and Gynæcologists:

Chairman, Council of British Medical Association;

Chairman, General Medical Council; Chairman, Council of Society of Medical Officers of Health.

The appointed members are:

- (a) 15 medical practitioners, of whom 2 are to be selected for their knowledge of mental illness and mental defectiveness;
- (b) 5 persons with experience in hospital management (not medical practitioners);
- (c) 5 persons with experience in local government (not medical practitioners);

(d) 3 dental practitioners;

- (c) 2 persons with experience in mental health services;
 - (f) 2 registered nurses:
 - (g) 1 certified widwife:

(h) 2 registered pharmacists.

Before appointing these 35 members the Minister is required to consult such organizations as he may recognize as representative of the persons specified in paras. (a) to (h) above.

4. The Minister may, after consultation with the Central Council, by order vary the consti-

tution of the Council.

5. The Minister is empowered to set up standing advisory committees to advise him and the Central Council on special aspects of the scrvice. These committees will consist partly

of members of the Council and partly of persons who are not members of the eouncil, and will be appointed by the Minister after consultation with the Council and with such representative organizations as the Minister may recognize.

In addition, the Central Council itself may appoint committees and the standing advisory committees may appoint sub-committees, and these bodies may include persons who are not members of the Council or standing advisory

eommittees, as the ease may be.

The function of a standing advisory committee is to advise the Minister and the Central Council upon such matters as it thinks fit relating to the services with which the committee is concerned, and upon any questions referred to it by the Minister or Central Council relating to those services. The committee may advise the Minister direct provided that it also informs the Central Council of the advice it has given, and the Council may express its views on that advice to the Minister.

- 6. The Central Council will make an annual report to the Minister on its work and that of the standing advisory committees, and the Minister is required to publish the report to Parliament, unless there is any reason of public interest for not doing so, when he may withhold it, in whole or in part, after consultation with the Council.
- 7.-The Central Council will elect a chairman from its members. The chairman of a standing advisory committee will be elected by the committee. These bodies may regulate their own procedure.

PART II. HOSPITAL AND SPECIALIST SERVICES

8. It is made the Minister's general duty to provide hospital and specialist services of all kinds, including general and special hospitals, maternity accommodation, tuberculosis sanatoria, infectious disease units, provisoins for the chronic sick, mental hospitals and mental deficiency institutions, accommodation for convalescent treatment and medical rehabilitation and all forms of specialized treatment. The services of specialists are to be available not only at hospitals, but also at health centres, clinies, and, if necessary on medical grounds at the home of the patient.

Transfer of Hospitals to Minister

9. The ownership of the present public and voluntary hospitals, teaching and non-teaching, will pass to the Minister. The existing premises and equipment and other assets, including, in the case of non-teaching hospitals, endowments, will be transferred to the Minister, together with existing liabilities. In the ease of teaching hospitals, which are those hospitals so designated by the Minister, the endowments will be transferred to the new Board of Governors.

Endowments

10. The Minister is to set up and administer a new hospital endowments fund, to which there will be transferred the endowments of nonteaching hospitals, with the exception of endowments of a capital nature given between the passing of the Aet and the appointed day, which will be vested in the appropriate Hospital Management Committee. The disposal of the monies in this fund is to be the subject of regulations made by the Minister. Broadly, these regulations are to provide that the fund shall be used, firstly, for discharging existing debts and liabilities attaching to the voluntary hospitals concerned. Secondly, the capital value of the fund is to be apportioned among the regional hospital boards and hospital management committees constituted under the Act. The income of each portion will then pass to those boards and committees to be used at the discretion of those bodies, subject to such general eonditions as may be prescribed. A Regional Board or Hospital Management Committee will also be empowered to draw on its portion of the capital for any purpose which the Minister approyes. The Minister, Boards of Governors, and Hospital Management Committees are required to secure so far as is reasonably practicable that the objects of the transferred endowments and conditions attached to them are not prejudiced.

11. The Regional Boards, Boards of Governors of teaching hospitals and Hospital Management Committees are empowered to receive gifts or legacies and to hold property on trust for purposes relating to hospital services, including

research.

12. If necessary for the purpose of the new service, the Minister may acquire, either by agreement or compulsorily, hospitals other than those transferred to him under the Aet, together with their equipment.

Any medical institution which may be set up in future can be acquired by the Minister if required for the purposes of the new service

Administration

13. The Minister, while assuming general resonsibility for these hospital and specialist services, will entrust their administration to Regional Hospital Boards, and to Boards of Governors in the ease of the teaching hospitals.

The Minister will, by order, constitute Regional Boards and determine the areas over which their jurisdiction will extend. So far as practicable, these areas or regions must be based on University Medical Teaching Centres.

14. The function of the Regional Hospital Boards is to undertake on behalf of the Minister the general administration of the hospital and specialist services in the region, subject to the Minister's general regulations and to such particular directions as he may give.

15. Each Regional Board is required to appoint, in accordance with a scheme to be ap-

The duty of arranging for the provision of these services is placed upon new local bodies to be called executive councils, one of which will be established for the area of each county or county borough; at the Minister's discretion a single executive council may be established for the area of two or more local executive councils. The executive council is to consist of thirteen members appointed by the Minister and local authorities and twelve appointed by the profession as follows:

(a) A chairman and four members appointed by the Minister:

(b) eight members appointed by the local health authority for the area of the executive council

(c) seven members appointed by the Local Medical Committee:

(d) three members appointed by the Local Dental Committee:

(c) two members appointed by the Local Pharmaceutical Committee.

- 28. The Minister has power to vary the constitution of an executive council or to establish a joint committee for the area of two or more executive councils to exercise some but not all of the functions of an executive council.
- 29. The main function of the executive council is to enter into contract with general medical practitioners, with dental practitioners and with pharmaeists for the provision (at a health centre or otherwise) of general medical, dental and pharmaceutical services in accordance with regulations to be made by the Minister. The regulations are to include provision for
- (a) the preparation and publication of lists of persons who undertake to provide these services.
- (b) conferring a right on any person to choose the medical or dental practitioner by whom he is to be attended, subject to the consent of the practitioner so chosen and, in the case of medical services, to any prescribed limit which may be placed on the number of patients to be accepted by any practitioner;
- (c) the distribution or allocation among medical practitioners who enter into contract with the executive council of persons who desire to obtain general medical services but who do not choose a medical practitioner or have been refused by the practitioner chosen;
 - (d) the issue of medical certificates.
- 30. Executive councils are also required to make arrangements with medical practitioners and opticians having the prescribed qualifications for sight-testing and the supply of optical appliances. Those services are referred to as "supplementary ophthalmic services" and their provision by executive councils is without prejudice to the ophthalmic services, clinic and other, to be provided by regional boards as part of the hospital and specialist arrange-

ments. The Minister, however, is empowered to abolish the supplementary scheme administered by the executive councils as soon as he is satisfied that adequate ophthalmic services are available through the hospital and specialist services provided under Para II of the Act.

31. The Minister has wide powers to make regulations with regard to the procedure of executive councils, including the appointment of committees, which may consist wholly or partly of members of the council, and the delegation of functions to such committees.

Control of Distribution

- 32. Only medical practitioners who are engaged in medical practice (otherwise than as paid assistants) are entitled as of right to provide general medical services under the Act. This right is conditional upon the practitioner making application before the appointed day to the executive council of any area in which he is practising to be included in the list of practitioners undertaking to provide general medical services for persons in that area.
- 33. After the appointed day any doctor who wishes to join the public service for the first time or, if he is already in it, to go to and practise in a new area will be required to obtain the consent of the Medical Practices Committee -a new central body appointed by the Minister. This body is to consist of a chairman (a medical practitioner appointed by the Minister) and eight other members, of whom six shall be medical practitioners and at least five of whom are actively engaged in medical practice. The only ground for refusal of the Medical Practices Committee's consent is that the number of practitioners undertaking to provide general medical services in the area or part of it concerned is already adequate.
- 34. When a practice becomes vacant or when, in the opinion of the Medical Practices Committee, there is a need for additional practitioners in a particular area and the number of applicants exceeds the number of vacancies, the Medical Practices Committee will select the person(s) whose application(s) is (are) to be granted and will refuse the other applications. Before making its selection the Medical Practices Committee is required to consult the executive council concerned and that body, before expressing its view on the person(s) to be selected, is required to consult the Local Medical Committee for the area (i.e., the Committee recognized by the Minister as representative of the local medical profession). Although the Medical Practices Committee is precluded from refusing the application except on the ground that there is an adequacy of practitioners, it

may by Order-in-Council appoint, and different days may be appointed for the purpose of different provisions of the Act.

may grant an application subject to the condition that the applicant is excluded from practising in a specified part or parts of an area.

35. The medical practitioner whose application has been refused or granted conditionally has a right of appeal to the Minister. The Minister, may, if he allows the appeal, direct either that the application shall be granted in addition to the applications already granted or that it shall be granted instead of such one of those applications as the Minister may specify. The Medical Practices Committee and, in appeal cases, the Minister, are to have regard to the wishes of an applicant to practise with other practitioners in an area, to any desire expressed by existing practitioners to take an applicant into practice, and special regard to family relationships.

Prohibition of Sale of Medical Practices

36. Section 35 of the Act makes it unlawful to sell the goodwill or any part of the goodwill of the practice of a doctor entering the public service on or after the service on or after the service of a doctor entering the public service on or after the service of a goodwill is liable to criminal proceedings, and, if found guilty, to imprisonment of up to three months and/or a fine up to such amount as will secure that he derives no benefit from the offence and a further amount of £500. This prohibition, however, does not cover the case of a medical practitioner whose name has ceased to be on the list of any executive council and who practises in the area of an executive council in whose list his name has never been entered.

A prosecution for an offence under this section can only be instituted by or with the consent of the Director of Public Prosecutions and a person so charged will be entitled to trial by jury at Quarter Sessions or Assizes.

37. There are enumerated in this section of the Aet a number of transactions, any of which is deemed for the purposes of the Aet to be the sale of the goodwill of a medical practice. For example: (1) if an assistant is employed for substantially less remuneration than his services "might reasonably have been expected to be worth" and subsequently becomes a partner of his employer, an offence is committed: (2) if doctors in the service are in partnership and agree to share in unequal proportions the income of the partnership they will be liable to be prosecuted if it is held that the partner who takes less than the other(s) is receiving substantially less than his services might reasonably have been expected to be worth at the time when the agreement was made: (3) a doctor's widow who knowingly sells his house to a practitioner for substantially more than the sum the house might have fetched if it had not been used for practice purposes commits an offence.

38. Subsections 9 and 10 of Section 35 of the Aet give a medical practitioner or his personal representative an opportunity of ascertaining in

advance whether a proposed transaction in the opinion of the Medical Practices Committee involves the sale of goodwill. If this Committee considers that the transaction does not involve the giving of any consideration in respect of goodwill it is required to issue to the applicant a certificate to that effect. Where a transaction results in a person being charged with an offence under this section of the Act, it is a defence to the charges to prove that the transaction was certified by the Medical Practices Committee unless the Court holds that the applicant for the certificate failed to disclose to the Committee all the material circumstances or made any misrepresentation—in which case the Court may disregard it.

Where a medical practitioner practises in partnership, the term "goodwill" is to be considered as referring to his share of the goodwill of the partnership practice.

Compensation

39. The Act makes it unlawful to sell the goodwill of the practice of a doctor entering the public service after the appointed day Doctors who join the service at the outset will be entitled to compensation in respect of the loss incurred through being unable therafter to sell their practices. The doctor who because of age or infirmity or both does not enter the service on the appointed day will be entitled to compensation just as if he had entered. Doctors who join the service after the appointed day will not qualify for compensation.

The practice of any doctor who dies or retires from practice between the passing of the Act and the appointed day, which has not been sold in the meantime, will qualify for compensation. If compensation is paid the practice will be regarded as having come within the service at the appointed day.

40. The aggregate amount of compensation for which provision is made in the Act is £66,000,000 and this sum will be apportioned between England and Wales on the one hand and Scotland on the other. The sum—

(a) is based on the Government's estimate that 17,900 principals will enter the National Health Service:

- (b) will not be subject to increase if in fact more than 17,900 principals so enter:
- (c) will be subject to reduction if the number of principals so entering is below 17.700; the reduction for each principal in defect of 17,700 to be 1/17.900 of £66.000.000.
- 41. Regulations will govern the detailed method of apportioning the global sum among the doctors entitled to compensation and the manner and times at which it is to be claimed and paid. The Minister is required to consult such organizations as he may recognize as representing the medical profession before making these regulations. The regulations are

to provide that as a general rule compensation will not be paid until the retirement of death of the medical practitioner concerned, whichever first occurs. In the meantime interest on the compensation due at the rate of 23/4% per annum will be paid in respect of the period from the appointed day until the time when the compensation is paid. In exceptional circumstances the compensation payment may be made earlier and the Minister has made it clear in his White Paper (Cmd. 6761) and in public announcements that the exceptional circumstances will include cases where hardship (e.g., through outstanding debts in connection with the practice) would otherwise arise.

Pharmaceutical Services

42. Executive councils will make arrangements for the supply of drugs, medicines and appliances to persons in their area who are receiving general medical services, if ordered by a medical practitioner rendering those services. It appears that a patient will not be able to obtain drugs, medicines and appliances under this arrangement unless they are ordered by a practitioner who has joined the service.

General Dental Services

43. All dental practitioners who undertake to provide general dental services under the Act will be in contract with an executive council. Their position will be generally analogous to that of medical practitioners on the executive council list save that there are no provisions with regard to the prohibition of the sale of goodwill or compensation for that loss; neither does the clause regulating the distribution of medical practitioners who enter the service apply to dental practitioners who enter the service.

Disqualification of Practitioners—the Tribunal

44. A special tribunal is to be set up to investigate cases where representations are made either by an executive council, or, if the tribunal thinks fit, by any other person that the continued inclusion of any doctor, chemist, dentist or optician in the lists drawn up by the executive eouneil would be prejudicial to the efficiency of the service. The tribunal will consist of a chairman, who must be a practising barrister or solicitor of not less than ten years' standing, appointed by the Lord Chaneellor and will in each case include a member of the same profession as the person who is the subject of the enquiry and one other member. The "other member" will be appointed by the Minister after eonsultation with such associations of executive councils as he may recognize as representative of those bodies. The "professional" member will be one of a panel of six persons appointed by the Minister after consultation with such organizations as he may reeognize as representative of the several professions concerned. The panel will consist of a medical practitioner, a dental

practitioner, a registered pharmacist, a medical practitioner practising as an oeulist, a sight-testing optician and a dispensing optician. Regulations will provide that the practitioner who is the subject of an enquiry shall have the opportunity of being heard in person, of being represented by counsel, solicitor or otherwise, of calling witnesses and producing other evidence, and of requesting that the hearing shall be in public.

45. The tribunal is bound to inquire into a case in which representations are received from an executive council, but where representations emanate from any other source the tribunal has discretion as to whether an inquiry should be Where the tribunal is satisfied that the eontinued inclusion of a person in any list to which the representations relate would be prejudicial to the efficiency of the service, it will direct the executive council concerned to remove from that list the name of the doctor, dentist, chemist, or optician. Where the tribunal so decides, a similar direction can be applied to all lists in all areas. The practitioner concerned may appeal to the Minister from any direction of the tribunal and the Minister may confirm or revoke that direction. When a practitioner's name is removed from the list or lists in question, he is disqualified for inclusion in any list to which the direction relates until such time as the tribunal or the Minister directs to the contrary. A practitioner who has already been disqualified from participation in the present National Health Insurance Scheme and whose disqualification has not been removed before the appointed day will not be entitled to participate in the new service.

Powers of Minister where Services are Inadequate

46. If the Minister is satisfied, after such inquiry as he may think fit, that the services provided by doctors, dentists, or chemists in any particular area are not adequate, he is empowered to take such steps as he considers necessary to secure an adequate service.

Postgraduate Courses

47. The Minister is empowered to arrange with universities and medical and dental schools for the provision of refresher courses for doctors, dentists, and others in the service and to contribute towards the cost of these services and the expenses of persons attending them.

Disputes

48. Any dispute arising under this part of the Act or under any regulation made under this part of the Act, whether between an executive council and a person receiving services or between an executive council and a local health authority as to the conduct of a health centre, is to be referred to and decided by the Minister.

PART V. MENTAL HEALTH SERVICES

49. The Act transfers to the Minister of Health the present administrative functions of the Board of Control in regard to mental health, the Board retaining only its quasijudicial functions connected with the liberty of the subject. The general transfer of hospitals to the Minister includes the present mental hospitals and mental deficiency institutions. The main mental treatment and mental deficiency services are to be a part of the new hospital and specialist arrangements under the Act. Local health authorities, however, are given responsibility for the ascertainment of mental defectives and their supervision when they are living in the community, and for the initial proceedings for placing under care those who require treatment under the Lunaey and Mental Treatment Acts.

PART VI. GENERAL

50. This part of the Act deals with financial arrangements and miscellaneous administrative matters, the more important of which are set out below:

(a) Finance

Except that certain charges may be made for the provision and renewal of appliances and for accommodation in private wards the service will be free to all who care to use it. The Exchequer will be responsible for the full cost of the hospital and specialist services and of the general practitioner, dental, ophthalmic and pharmaceutical services together with the cost of central administration and will also pay approximately one-half of the eost of the various services to be administered by the local health authorities.

(b) Default Powers of Minister

If in the Minister's opinion any of the various bodies constituted under the Act have failed to carry out any of their functions under the Act or to comply with any of the regulations or directions he may, after inquiry, declare that body to be in default and direct them as to the time and manner in which the default is to be remedied.

(c) Qualifications, Remuneration, and Conditions of Service of Officers

These will all be governed by regulations to be made by the Minister.

(d) Superannuation The Minister has power to make regulations granting superannuation benefits on a contributory basis to officers of the various bodies constituted under the Act and to medical practitioners and dental practitioners providing general medical or deutal services.

(e) Transfer and Compensation of Officers The Act requires regulations to be made providing for the transfer to the appropriate authority under the new service of officers employed immediately before the appointed day by hospitals, insurance committees, and local authorities. In the case of honorary officers of a hospital, the position is obscure as the transfer of these officers is subject to such exceptions and conditions as the Minister may prescribe. Compensation will be payable, subject to certain exceptions or conditions to be prescribed, to officers whose functions are transferred or are extinguished by the Bill if they were previously employed wholetime and suffer loss of employment or loss or diminution of emoluments or of superannuation or similar rights which is shown to be directly attributable to the Act. The amount of compensation and the basis of its ascertainment are not specified in the Act but are left to be settled by regulations.

Regulations and Orders

51. A wide field remains to be covered by Regulations and Orders which the Minister is empowered to promulgate by the Act. All Regulations to be made under the Act are subject to Parliamentary control, but unless there is provision to the contrary Orders are not subject to Parliamentary control. Parliamentary control is exercised in two ways:

1. by affirmative resolution; regulations subject to this are ineffective until the House

has positively approved them;

2. by negative resolution; regulations subject to this, though required to be laid before Parliament immediately they are made, become operative at once and, unless Parliament within forty days resolves that they be annulled, have statutory effect as if they were incorporated in the Act.

52. Of the Act's 80 clauses and 10 schedules. 40 confer on the Minister the power to make regulations or orders. The only regulations in the National Health Service Act which require an affirmative resolution of Parliament before they become operative are those dealing with (1) superannuation and (2) the transfer and compensation of officers of hospitals, local authorities, and insurance committees.

53. Among the matters, many of them of fundamental importance, to be settled by regulations which do not require an affirmative

resolution are:

(a) the control and management of the Hospital Endowment Fund:

(b) the functions of Regional Hospital Boards, Boards of Governors of Teaching Hospitals and Hospital Management Committees;

(c) the appointment of medical and dental

staffs of hospitals:

(d) the arrangements to be made by executive councils with doctors, dentists, opticians, and pharmacists for the provision of services

to patients:

(c) the functions of executive councils in relation to filling vacancies in medical practice and the procedure for applications to the Medical Practices Committee and for appeals to the Minister.

(f) the extent to which executive councils shall consult with Local Medical, Pharmaceuti-

cal, and Dental Committees:

(g) the apportionment of the compensation global sum and the manner and time at which claims and payments are to be made;

(h) the procedure of the tribunal dealing

with the disqualification of practitioners;

- (i) the arrangements for the use of health centres by medical and dental practitioners;
- (j) the qualifications, remuneration and conditions of service of officers;
- (k) the appointment, tenure of office, and payment of:
 - (i) members of the Central Health Services Council and standing advisory committees:
 - (ii) members of Regional Hospital Boards. Hospital Management Committees, Boards of Governors of Teaching Hospitals and of committees of those bodies and the procedure of those bodies;

(iii) members of executive councils and of committees of those councils, their officers

and procedure;

(iv) members of the Medical Practices Committee;

(v) members and officers of the Tribunal:

(l) the recovery of charges for certain appliances and special dental treatment;

(m) grants to local health authorities:

- (n) payments to Regional Hospital Boards, Boards of Governors, executive conncils, and other bodies
- 54 Orders are administrative acts of the Minister and do not come before Parliament in either of the ways applicable to Regulations, unless the Act so specifics.

I only Orders which the Act specifies as bei 2 subject to a negative resolution are those

(1 varying the constitution of the Central Health Services Council;

(2) determining the areas for which the Regional Hospital Board will be remarkable.

- (1) amending or repealing local acts and charlers which are redundant or inconsistent with the Act.
- 55 \The matters on which the Minister has power to make Orders which are not subject to Parlia acutary review include:
- (a) the constitution of standing advisory committees of the C tral Health Services Conneil;
- (b) the constitution of Regional Hospital

- (c) the designation of hospitals as teaching hospitals and the constitution of Boards of Governors:
- (d) the constitution of joint boards for the areas of two or more local health authorities;
- (e) the constitution of a single executive council for the areas of two or more local health authorities;

(f) the variation of the constitution of a local

executive conneil:

- (g) the constitution of a joint committee for the area of two or more executive councils for the purpose of exercising some, but not all, of the functions of the executive council;
- (h) the termination of the arrangement for the provision of supplementary ophthalmic services by an executive council:
- (i) the exercise of default powers against local health authorities and any of the bodies constituted by the Act—the various hospital bodies; executive councils, and others—if they are not carrying out their functions or failing to comply with any regulations or directions relating thereto;

(j) the acquisition compulsorily of land required by the Minister for the purposes of the

Àct.

THE PROFESSION AND THE ACT

- 56. Prior to the publication of the National Health Service Bill, the Negotiating Committee of the profession formulated and published a series of principles in which were expressed in general terms the basic tenets of the profession on the subject of the organization of the country's medical services. These principles are as follows:
 - I. The Medical profession is, in the public interest, opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full-time salaried servants of the State or local authorities.
 - II. The medical profession should remain free to exercise the art and science of medicine according to its traditions, standards, and knowledge, the individual doctor retaining full responsibility for the care of the patient, freedom of judgment, action, speech and publication, without interference in his professional work.
 - III. The citizen should be free to choose or change his or her family doctor, to choose, in consultation with his family doctor, the hospital at which he should be treated, and free to decide whether he avails himself of the public service or obtains the medical services he needs independently.
 - IV. Doctors should, like other workers, be free to choose the form, place, and type of work they prefer without governmental or other direction.

V. Every registered medical practitioner should be entitled as a right to participate in the public service.

VI. The hospital service should be planned over natural hospital areas centred on universities in order that these centres of education and research may authorize the whole service.

VII. There should be adequate representation of the medical profession on all administrative bodies associated with the new service in order that doctors may make their contribution to the efficiency of the service.

57. An examination of the Act in relation both to these principles and to more detailed expressions of policy reveals wide divergences between the provisions of the Act and the

principles of the profession.

58. The profession is opposed to any development which tends to convert its members into full-time salaried servants of the State or local authorities. Government speakers have confirmed that a full-time salaried service is their objective, although they admit that such a service is inconsistent with free choice of doctor and not practicable at the present time

59. Under the proposals of the Act consultants and specialists will become salaried officers of regional bodies appointed by the Minister, undertaking all their hospital work in hospitals owned by the State. General practitioners no longer owning the goodwill of their practices, will be, to an extent yet to be determined, salaried employees of the State through local councils.

60. The profession has urged that there should be proper co-ordination and correlation of the country's medical services, both centrally and locally. Central departmental responsibility for health services remains divided amongst a number of different departments. Locally, the Act establishes not one but three administrations with insufficient co-ordination between them.

61. The hospital provisions, although ereating what the profession has long desired—a powerful regional organization—may tend to destroy local interest and initiative and so affect adversely the capacity of a hospital for innovation and experiment, its power to attract nursing and other staff and the confidence of the local people in their local hospital.

62. In the field of general practice the pro-

fession has expressed the views:

(1) that general practitioners should retain the goodwill of their practices:

(2) that there should be no governmental control over doctors in regard to the areas in which they practise:

(3) that, except where special circumstances justify it, remuneration should be by capitation payments in proportion to the number of persons on a doctor's list.

The Act provides for the abolition of the custom of buying and selling general practices and for the establishment of a machinery of negative direction over the movement of general practitioners, while the profession maintains that the ownership of goodwill is essential to the continued freedom of the general practitioner. This abolition is regarded as a first and substantial step to a State salaried service while the system of "negative direction" which is proposed is an unjustifiable and unnecessary interference with the freedom of the doctor. Any necesary improvement in the distribution of doctors can be achieved on the existing basis of general practice.

63. The abolition of the custom of buying and selling practices creates more problems than it solves. An inevitable consequence of abolition is that the sale of practices for which compensation is paid should be illegal. But in addition to such prohibition the Act contains a series of definitions of offences so wide in their scope and so abstruse in their terminology as to be likely to be unjust in their application, despite the provision for some measure of pro-

tection by registration.

64. Though it appears to be contemplated that practitioners will work in partnership, such partnership will involve the risk of prosecution in every case in which the partners agree to share the income in unequal proportions, unless they obtain in advance a certificate from the Medical Practices Committee. The Act gives no guidance as to the basis upon which the services performed by any partner should be estimated or as to the factors which may properly be taken into account, except that regard is to be paid to the circumstances at the time when the agreement was made.

65. In the ease of an assistant who subsequently succeeds to the practice of his principal, the principal is deemed to have sold the goodwill of his practice to the assistant if the remuneration paid to the assistant was substantially less than his services might reasonably have been

expected to be worth.

66. Even though the global compensation sum of £66,000,000 includes no allowance for the loss of goodwill in relation to doctors' houses, a praetitioner who sells his house to another practitioner with the knowledge that it will be used for practice purposes is liable to prosecution and, if convicted, to heavy fine and imprisonment if the purchase price is "substantially in excess" of the price which might reasonably have been expected if the house had not been used for practice purposes. It is impossible to foretell what interpretation a court might place on the words "substantially in exeess". premises are conveniently situated for a medical practice and have been used for a medical practice for many years a valuation of the premises upon the footing that they have never been so used would present a difficult problem to an expert valuer, and an even more difficult problem to a medical practitioner. A praetitioner's widow or other personal representative (e.g., the Public Trustee or a Bank) would be confronted with similar difficulties when disposing of his house, bearing in mind that the most likely purchaser would be another medical practitioner.

67. Doetors who do not join the service by the appointed day will not qualify for compensation. The general practitioner must make this decision at the outset, before he has an opportunity of learning the wishes or inclinations of his patients. If he stays outside the service he may lose all his practice goodwill and will forfeit for ever his title to compensation. His patients will be penalized, as medicine and appliances will not be provided free under the Act to those patients who are not under the eare of a doctor who has joined the service. It is difficult to reconcile this with the claim advanced in the Government White Paper that "all the service, or any part of it, is to be available to everyone. . . ."

68. The Minister's expressed determination to introduce a salary element in the remuneration of all general practitioners, whether special circumstances justify it or not, is further evidence of movement towards a full salaried service. A registered medical practitioner will not be able as of right to enter the new service.

69. The Act involves an excessive concentration of power in the hands of the Minister. He will appoint the Central Health Services Council and its committees. He will appoint the Regional Hospital Boards who will in turn appoint the Hospital Management Committees. He will determine by Regulation a wide variety of issues including mode and amount of remuneration. He will determine the issue of the continuance of a practitioner in the general medical service without a right of appeal to the Courts. majority of Regulations the Minister makes will become law from the moment he makes them, subject only to their annulment by a Prayer in the House of Commons. He will deal with many important subjects by Orders which are not subject to Parliamentary control.

The profession has for years been pressing of a really satisfactory health and medical struct. Although the constructive proposals of profession are reflected in certain sections in Act, yet in many important respects it is substantial conflict with the views hitherto pressed by the medical profession, both in some general terms as in the statement of principles and in the more detailed terms of the expensional bodies. The independence of medicine is at stake.

MEN and BOOKS

THE PRAYER OF A PHYSICIAN*

(Dedicated to the memory of Rabbeinu Moses-ben-Maimon)

Mordecai Etziony, M.A., M.D. Montreal, Que.

To Thee, O great Areane, Creation's Force and Source, Of nature Fons et Origo, Prime Mover! — —O be-Thou-what-Thou-be! — To Thee, in my dire helplessness, I make my prayer.

Not for the sake of fame desired, Nor yet for fortune's sake, But for the sake of those who in delirium ery, And those who in their agony lie broken, I do address myself to Thee.

O, not—forfend it!—that I envy Thy might
And of Thy wisdom am jealous,
I plead, but for the sake of ficsh that is wounded,
And limbs that move not
I send my prayer to Thee.

Thou who hast poured of Thy wisdom Upon the heads of Pasteur, Hippocrates, And on Maimonides, Fount of philosophy, Accept my plea!

Do make sharp my senses
That without error or confusion
They may perceive.
Make elear to my sight
The body's eloquent flaws, its diagnostic rash,
And from my hearing
Let not the least stutter of the pulse
Escape.

Make them strong and hale,
The twelve-seore-and-eight members of my frame!
Teach them to serve me
Altogether and in harmony:
When I fare forth to the siek-bed,
Let them not tremble, my hands;
Nor my feet, stumble.

So that I ehoose, straightway, and without doubt, The remedy to follow the disease, Make straight my judgment.

Make straight my judgment that I may know, And keen my perception that I may recognize Each illness in its particularity.

Let no invalid by my error be undone.

^{*} This prayer was written originally both in Hebrew and Yiddish at the time of the author's graduation in medicine. The translation has been rendered from the Yiddish by the Canadian poet, A. M. Klein. [EDITOR]

Also to me.

To others' pain, make sensitive my soul, And to another's anguish open my heart. And O—if the healing of mine enemy is in my haud, Cleanse me of hatred.

Preserve me, Thou great Healer, From envying my fellow his leechcraft, His scope and reach. May his insight and inventions bring Joy and well-being

Source of all Truth! Aid me against stiff-neckedness and pride. Teach me humility to know The angle of my own shortsightedness. And never let—O never let An ill man through my error be undone, Nor through that error, Thy holy name be soiled.

And grant, grant that the courage and selfsacrifice. Which shone up through the lives Of Koch, Ricketts, and Noguchi, Illumine also my dark path.

4873 Park Ave.

ASSOCIATION NOTES

The Seventy-eighth Annual Meeting, Winnipeg, June 23 to 27, 1947

- In order to offset the shortage of room space in the hotels of downtown Winnipeg for the Seventy-eighth Annual Convention, the University of Manitoba has generously offered the use of its Main Residence.

This beautiful building is situated on the campus of the University amongst some of Close by the Red Manitoba's loveliest trees. River makes a wide loop as it flows towards the City. The Residence is a three story, fireproof building, of brick and stone construction. The stone is from the famous Tyndall Quarries, which supplied the material for the Legislative Building. A number of commodions reception rooms are available for guests. There is a large dining room with a modern cafeteria. The latter was opened in the antumn of 1946. The University will serve breakfast only, as it was felt that guests would prefer to get lunch and dinner downtown.

The Residence has been completely redecorated within the past year and fluorescent lighting installed in the rooms and hallways. The rooms are large, will accommodate two persons, and are equipped with single beds. Bedding is supplied but guests are asked to bring their own towels. Each floor of the Residence has ample lavatory and bathroom facilities. After the clamour and heat of a day spent in a modern eity the quiet security of this beauty spot of Manitoba should please all those who seek a good night's rest.

Rapid motor coaches give quick service from the Residence to Convention Headquarters. Guests who have their own cars will find ample parking space within a minute's walk from the Residence.

The Committee on Housing has a central registry for guests desiring accommodation for the Convention. In writing for room space, please indicate preference for Hotel or Residence accommodation. The address is 505 Medical Arts Building, Winnipeg. It is unnecessary to add that the committee will do all possible to meet the wishes of our guests but, due to the aforementioned shortage of hotel rooms, the Committee on Housing cannot guarantee that the applicant's wishes on accommodation can be met.

MEDICAL SOCIETIES

Academy of Medicine, Toronto

Dr. Omond M. Solandt recently addressed the Academy of Medicine, Toronto, on the effects of the atomic bomb at Hiroshima. He described three types of effect on the sufferer,—(1) killing or injury by the blast; (2) obvious visible burns on the skin which assume some bizarre shapes such as the pattern of the dress; and (3) radiation burns whose effects appear some time later. In round figures, 50,000 were killed, another 50,000 were injured, and others showed some effects. Pregnant women within 3,300 feet of the bomb burst had miscarriages and none of the children born within a mile of the blast survived. Of the children born within twenty miles of the bomb, only a third were normal and survived. Many of the men near the bomb area were later found to have become sterile. If a bomb this size were dropped on Toronto, its effect would be felt from the Lakeshore to Eglinton Avenuc. Dr. Solandt felt that the best defence against the bomb would be to stop war itself.

Dr. Solandt is Director General of Defence Research. Department of National Defence, Ottawa. He has a

brilliant record in rescarch.

District Medical Society No. 7, Alberta

A meeting of District Medical Society No. 7 was held at the Provincial Mental Hospital, Ponoka, on Friday, November 15, 1946. In spite of the sudden change in the climatic conditions the meeting was well attended. Dr. R. R. Maclean, Medical Superintendent of the Hospital, opened a discussion on the topic of "Neurosyphilis". He outlined the history of neurosyphilis since the opening of the hospital in 1911. His statistics showed the marked reduction in mortality as present day treatment evolved.

Dr. T. C. Michie followed with his paper on the "Incidence of neurosyphilis", and Dr. Murray, also of the hospital, discussed the treatment as practised in the hospital. Dr. J. M. Byers presented a series of case histories illustrating the various phases of syphilis of

the central nervous system.

A letter from Dr. A. F. Perl, of Provost, was readin which he regretted that the facilities at Provost were

he interned at St. John's Hospital, New York City, and also at Brooklyn, N.Y., Eye, Ear, Nose and Throat Hospital for two years. He spent two years studying at Vicnna, and returned to this city, where he opened practice about 20 years ago. He became professor of ophthalmology at Queen's University and was vice-president of the Canadian Ophthalmology Society.

He was a member of Ancient St. John Lodge No. 3, A.F. & A.M., the Kingston Yacht Club and the Cataraqui Golf and Country Club, also St. George's

Cathedral and the Scottish Rite.

He is survived by his widow, one daughter and two

Docteur Stanislas Gaudreau est décédé à Québec le 30 octobre, à l'âge de 74 ans. Le docteur Gaudreau était un citoyen distingué et un médecin réputé.

Dr. Richard Henry Moore Hardisty, D.S.O., M.C., a physician on the staff of Royal Victoria Hospital for 32 years and lecturer at McGill University, died November 12, at the age of 68.

Born in Fort William, Dr. Hardisty came to Montreal at the agc of seven. In 1903 he graduated in medicine from McGill University and became an intern at Royal Victoria Hospital, being appointed to the staff in 1911.

He retired to the honorary attending staff in 1943. He joined the staff of the medical faculty of McGill University as a part-time demonstrator in 1912, later becoming a lecturer and in 1941 became attending physician of Royal Victoria College. In 1945, he was made physician of the department of physical education.

Dr. Hardisty joined the Royal Canadian Army Medical Corps at the outbreak of World War I and went to the front with the No. 6 Field Ambulance Corps, later being promoted to the rank of Lieut. Col. and the command of the unit.

He was a nophew of the late Lady Strathcona, a member of the Royal Montreal Golf Club and the University Club.

He is survived by his widow, the former Elizabeth Porter, of Montreal, and a brother, Alfred.

AN APPRECIATION

Thou must be like a promontory of the sea, against which, though the waves beat continually, yet it both itself stands, and about it are those swelling waves stilled and quieted.—Marcus Aurelius.

Dick Hardisty was an old-fashioned physician of the best type; the youth and specialism of today need to emulate hum. He was educated in a great school, for the old Montreal High in his time was unique in this city and gave a good education, but above all produced men of steadfast principle and character. Then later, he was at McGill for eight years, in her comparatively early and more intimate days, and at the Royal Victoria Hospital as an intern in its very infancy. Then came general practice in Sherbrooke, with its tribulations, triumphs, and trials, especially long country drives in the treezing cold weather, until his hands almost froze on the rems. After that a year abroad: then again the Royal Victoria as a junior assistant; Field Imbulance Medical Officer from start to finish of World War I, winning the D.S.O. and M.C.; his return as O.C. of his original Unit; then settling down to practice in Montreal and at the Royal Victoria Hospital as an intermst for the rest of his life.

That was Dick Hardisty-a man of inviolable character, following a straight line, for when he once made up his mind, he was not to be turned from the path of duty. Modest and unassuming, always dignified but never pompous, sympathetic and a lover of mankind, steadfast as a rock, true to his friends and patients -he was much loved.

DR. H. P. WRIGHT

Dr. Chester Houston, 72, anæsthetist and radiologist at the Prince Edward Island Hospital in Charlottetown for the past 15 years died November 16.

He was a native of New Glasgow, P.E.I., and after he graduated from McGill University in 1898 practised medicine at Crapaud, Kensington and Souris before coming here.

He is survived by his widow, a son and three sisters.

Dr. Houston Irwin, of Pembroke, Ont., died Novem-

ber 17, 1946, at the age of 76.

Dr. Irwin was born in Pembroke and was a graduate in medicine in 1889 from McGill University. For 30 years he practised in Pembroke, where he served for some time on the town council. For the last 16 years he had practiced in Bonfield and held the office of M.O.H. He was a member of the United Church, the I.O.O.F. and the Masonic order.

Surviving are his widow, a daughter and a son.

Dr Albert Jinchereau, est décédé le 25 octobre, à Québec, à l'âge de 68 ans.

Parmi la famille en deuil sont deux fils et quatre frères.

Dr. A. J. Lafleur, Montreal physician, died suddenly

November 2, in his 60th year. Dr. Lafleur was born at St. Pierre les Becquets, and studied medicine at Laval University. . He served in the Army during the Great War. In 1919 he entered St. Justine Hospital, where he held various posts as a general practitioner and as a specialist in tubercu-losis. He was to have become examining physician at the out-patients department the morning of his death.

He is survived by his widow.

Dr. B. Wesley MacDonald, passed away at his home in Ottawa, on November 8, following a brief illness. He was born in Ottawa in 1893. Following his early education here, he attended

Queen's University, and upon graduation in 1924, took a three-years' postgraduate course in New York.

He returned to the Capital, where his practice gained him wide prominence.

Ardent in sports, Dr. MacDonald at one time played football for Queen's. He was also interested in boxing and hockey and for several years was club physician for the old Ottawa Rangers football team. He was a member of the Masonic order, Queen's Lodge, 578, Kingston.

He is survived by his mother, a brother and a

sister.

Dr. Neil John Maclean, a leading surgeon of Western Canada, died at his home on November 13, after a brief illness. Born at Lindsay, Ontario, March 17, 1870, he moved with his family to Winnipeg in 1882. He was educated in Manitoba College and graduated from Manitoba Medical College in 1898. After serving as a house surgeon in Winnipeg General Hospital, he went to England where he obtained the L.R.C.P., M.R.C.S. degrees. Later postgraduate studies were pursued at Chicago, Berlin and Vienna. In his early years he was attracted by the surgery of the late Dr. Alexander Hugh Ferguson, whose life and work he set forth in the Masters of Surgery series in Surgery, Gynæcology and Obstetrics. Many other articles from his pen were published in the Canadian Medical Association Journal and other journals.

At various times Dr. Maclean was surgeon to the

Winnipeg General Hospital, St. Boniface Hospital, the Children's Hospital of Winnipeg, Tuxedo Military Hos-pital, and Manitoba Sanatorium at Ninette. For some time he was associate professor of surgery in Manitoba Medical College. In addition to his British degrees he was a Fellow of the American College of Surgeons and a Fellow of the Royal College of Surgeons (Canada). He was an active member of the Western Surgical Association. He assisted in the revival of the Canadian Medical Association after World War I.

In 1941 he organized in Winnipeg the Maclean clan and was active in bringing its membership to between

200 and 300.

After the first World War he organized the Maclean-Gunn Clinic, later the Maclean-Thorlakson Clinic, which expanded to become the Winnipeg Clinic. In this Dr.

Maclean was senior consultant.

He is survived by his widow, three daughters, three sons—Dr. Ian S. Maclean and Dr. Bruce Maelean of Winnipeg and Dr. Alistair D. Maclean of Elkhorn, Manitoba, and eight grandchildren. Anothr son, Capt. Donald S. Maclean of the First Canadian Paratroop Battalion, died on the Normandy beaches on D-Day, June 6, 1944.

AN APPRECIATION

Dr. Neil John Maclean was a kind man, the sort people gravitated toward for advice and help, for he always responded. Though he was deliberate to the point of slowness, he must have early known what he wanted to do. Before he started to do surgery, he did European postgraduate work; afterwards he continued his visits to other cities of both continents, keeping up with ideas and techniques. His own clinic must have been the first of its kind in Canada; co-operation among doctors was not universal when he started. To others in the profession he was extremely generous. He was a prop to the weak, his surgical skill went beyond the mechanics of healing to the spirit of the patient; a precious Sunday afternoon would often be given up to a soul lost and frightened by malignancy. His patients were strengthened after they had passed on their fears to him. His was intelligence of the heart.

His family life was tumultuous. The seven children,

His family life was tumultuous. The seven children, seemingly about the same age, with visitors and extras and the interruptions of a busy doctor's phone attached to a long extension cord, made dinner there an excitement to a fledgling doctor in the twenties. Guests caused no visible effort to anyone, they were just part of the normal household pattern. Children's life and fun, emergencies and phone calls bringing demands from old and new friends moved around his grave and con-

siderate person.

He had the simplicity of a great spirit. The manner of his death seemed fitting; the final illness, not thought to be serious, came to him at home, unexpectedly, where he died without fanfare, special nurses or consultants. In him Canadian medicine has lost a very great gentleman.

LILLIAN A. CHASE

AN APPRECIATION

Neil John was fortunate in his birth. His parents were Scottish, better than that, they were of the Northern Scots, and better still of the Hebrides. The mantle of heredity clothed him, protected him, and lasted him to his life's end like a chain covered with a silken film. It caused him to lead a life that was at once unhurried, purposeful and successful. His success did not come in fits and starts, by necident or by what we call fortune. He did not waver or follow false leads, but he kept to a plan. No short cuts or changes of plan harassed him. The plan taught him to be diligent above all else; to burn the midnight oil, to count each day lost whose late descending sun saw by his hand no worthy act performed.

where the sach and no worthy act performed.

He was not boisterous in his humour, but humour he did not lack. Nevertheless it spread smiles and gladness over all within reach, sometimes it was tinged with sadness or as Carlyle well said, "Always there is a black spot in our sunshine, and it is even the shadow of ourselves". His manner of speech, his questioning eye, his careful garb, added to his dignity and made him a man of marked personal charm.

After many years of contact with Dr. Maclean I would say that the words which describe him best are honesty, industry, thoroughness and sympathy. These qualities made him what he was, the best and most skilful surgeon in North Western Canada. In addition to his expert hands and his unerring judgment he had a profound knowledge of scientific medicine, and a bed-side manner that won the confidence of all patients with whom he came in contact.

His personality was such that he did not indulge in blatant controversy with his fellow practitioners. One might say truthfully that the noise of his contemporaries disturbed him and the discussion of domestic or political problems did not interest him. He spent a good deal of time in silent thought, in which his eye was directed inward to the exploration of a thousand regions in his mind. He was a puzzle to me, but yet he was so sincere and so earnest that the enigma should have been easily overcome. What he lived for was not perfection in the art of surgery, but the building of a character of a good man and a worthy citizen. In these efforts fortune was with him. He had the knowledge and he had a thousand opportunities of putting his knowledge and his skill into the service of all with whom he came in contact.

He chose his friends with a finc discrimination; he was pleased with knowing the best of them, but embarrassed by the company of fools. Thus his nature had made him meritorious and fortune provided the opportunity of bringing his good qualities into play. It is not sufficient to have good qualities, but we must

be able to make the proper use of them.

He was always hopeful, and while hope often leads to error it serves to conduct us through life. He was not a voluminous talker and was guided by the thought that eloquence consists in saying all that is necessary and nothing that is unnecessary.

necessary and nothing that is unnecessary.

The accent of a man's native country dwells in his mind and heart. He sits by an open fire, the warmth of which brings him content, and its light illumines the past; perhaps he dreams and in his dreams beholds the Hebrides. Neil John's progenitors were from the Western Isles of the North of Scotland, so well described in the Canadian Boat Song. "From the lone shieling of the misty islands, mountains divide us and a waste of seas, but still the blood is strong, the heart is Highland and we in dreams behold the Hebrides'"

E. W. MONTGOMERY

(The following tribute has been paid to the late Dr. A. E. Medd of Winnipegosis, whose death in August, 1946, was recorded in our October issue. It was written by Mr. Kenneth M. Haig of the "Winnipeg Free Press".—Editor.)

It is curious in Manitoba how soon the pavement loses itself in the trail, and how presently the settlements thin out until there they are outposts of the wilderness. Winnipegosis is one of these, up on the lake of that name, and out from it are a few farm steads and further still Indian reservations and along the shore line the cabins of the half breeds. It is a few weeks now since, out there, "Our Doe" died. One thing about outpost communities, they have time to mourn their dead. So it is that Dr. A. E. Medd's name remains in that place vividly alive.

He went there in 1909 when he graduated from the Medical faculty, Manitoba University. He knew the country somewhat. After all, it was his native province, but it is a long way from the rolling wheat fields and cattle on a thousand hills of Brandon, and this fishing community by the Lake.

When Winnipegosis has money it is very very flush, and when it is broke, it is stoney. Not that bank accounts mattered much to the Doctor. The healing of the sick was what mattered. And there he was on trails and no trails, chiefly the latter, with horse and buggy, on horse back, or sometimes, when the going was tough and the need insistent plugging along on foot.

It seems sometimes now, that his old friends and patients see his long, lean, sandy-haired person coming along the road or hear the raftle of his car. Surely he cannot have left them forever! Surely he will be in his place at the meeting of the School Board; surely he will be on "Main Street" Saturday night to give greeting to some of his babies, thirteen hundred of them, that he brought into the world, or to seek out his cronies to arrange a shooting trip. Perhaps it will be a new species of bird he has discovered! Perhaps it is time

the tennis club opened. Or when the drums of war beat, it may be a Red Cross or recruiting drive.

Winnipegosis cannot quite get used to it, the absence of "Our Doc".

They are missing him too out on the Indian reservations, Shoal River, and Waterhen, and Crane River, Pine Creek and Swan Lake. So they are in the half breed cabins, for Dr. Medd never refused a call to his darkskinned brothers and never slacked his care for them. Winnipegosis has the memory of the time diphtheria struck at Duck Lake, fifty miles north of the town.

They can see Dr. Medd packing into the Provincial Fisheries branch snowmobile, a contraption with skiis and a caterpillar engine, and off he was across the ice hilled lake, bobbing and bunting and the wind circling. He got there though with his toxoid and antitoxin.

They have another picture too. It is of the jigger on the railway skyline with its bundled patient and the Doctor and helper pushing. It is on its way to the Dauphin hospital. There is a bit of a catch to this for, sometimes, the Doctor had to pay the transportation as well as forgetting all about his own bill.

So a country medical practitioner of Manitoba died. He left behind him a great wealth of intangible things, among them a heritage, all unknowingly built up through the years, which touches with light his own beloved calling.

Dr Charles-Auguste Raymond, est décédé à Neuville le 11 novembre.

Le Dr Raymond était né à Deschambault en 1890. Il avait fait ses études au séminaire de Québec, puis à l'Université Laval d'où il avait gradué en médecine en 1912. Il avait ensuite pratiqué la médecine jusqu'en 1938 à Donnacona. A compter de cette date, il s'était retiré à Neuville. Toujours, il s'était intéressé à la musique et c'est sur ses instances que sa fille Madeleine se consacra définitivement à l'étude de cet art où elle excelle aujourd'hui non seulement comme exécutante mais comme improvisatrice.

Survivent au défunt, sa femme, deux fils et quatre filles.

Dr. Lawrence V. Redman died of a heart attack on November 25 in Toronto,

Born at Oil Springs, Ont., Dr. Redman was 66 years old. He graduated in arts from the University of Toronto and was a fellow at the university from 1908 to 1910. Assistant professor at the University of Kansas for four years, he was active in researches on synthetic resins. Prominent for many years in scientific circles in Chicago and New York, he had resided on his farm near Burlington since his retirement 14 years ago.

Dr. Redman became president of the Redmanol Products Co. of Chicago in 1914 and with the merger of the company with Bakelite Corporation, was appointed vice president and director of research. Elected president of the American Chemical Society in 1931, Dr. Redman also served as chairman of the Chicago

section and later the North Jersey section.

Many honours were conferred upon Dr. Redman, the honorary degree of Ph.D. from the University of Toronto, and D.Sc. from McMaster University. He was awarded the Graselli Medal for the best article on chemistry and was also the winner of the gold medal awarded by the Society of Chemical Industry of Great Britain for the most outstanding contribution to chemical science during that period.

to chemical science during that period.

He was a fellow of the Canadian Institute of Chemistry, Toronto Arts and Letters Club, Sigma Xi and Alpha Chi Sigma fraternities.

Dr. Redman is survived by his daughter, and a son.

Dr. William Dixon Scott, aged 87, dean of Peterboro medical men, died November 26. He retired in 1934. A farm accident that necessitated amputation of a foot, turned him to medicine in his youth. He was a horse-and-buggy doctor in the early days of the century and served a large rural area where travel was difficult.

Dr. A. J. Slater died on October 26 at the age of 73. Born in Galt, Ont., he attended the collegiate institute there, then came to Winnipeg in 1899. Five years later he graduated from Manitoba Medical College. He practised for a year in Emerson, then returned to Winnipeg and for a number of years was anæsthetist at St. Joseph's Hospital and received special recognition for his work. Surviving him are his widow, two daughters and two sons.

Dr. C. Milton Stratton, dean of the medical fraternity in Napanee and Lennox and Addington County, died in Kingston General Hospital, November 19, following a long illness. He was a graduate of Queen's University in 1902.

He had been a member of the county council for about 12 years until resigning as reeve of Napanee at the end of the 1944 term owing to failing health.

Practising in the town and district for over 40 years he was the Medical Health Officer for Richmond Township and during the first Great War examined a large number of recruits enlisting for active service. He was a staunch Conservative, a Masonic past master and a member of Grace United Church. His widow survives.

Dr. Charles Fenwick Wylde died in Montreal on November 24, in his 80th year.

A native of Halifax, Dr. Wylde received his early education there and entered McGill University, from which he graduated in medicine in 1888 before he had attained his 21st birthday. After practising elsewhere, including some years at Westville, N.S., he returned to Montreal in 1895 where he became active in medical, military and sports circles.

He was one of the original officers of No. 5 Canadian Field Ambulance, an extremely efficient militia unit under the late Dr. H. S. Birkett, which volunteered and was ready for active service within a day or two of the outbreak of war in 1914. Dr. Wylde went overseas in 1914, his ambulance becoming absorbed into No. 1 Canadian General Hospital with which unit he had a long and distinguished service, eventually being appointed its commanding officer. It was under him that the unit reached its fullest expansion and carried on the tremendous volume of work for which it became so well-known. Later on Dr. Wylde became A.D.M.S. in London and was awarded the C.B. for his outstanding services. He was extremely popular with his men, as he never spared himself in their interests, and his quiet and direct manner inspired confidence and respect. He had the keenest interest in sport, and himself excelled in tennis, golf and curling. He was also an ardent yachtsman and sailed his own boat for many years.

His professional interests in Montreal were extremely wide. He was outpatient physician to the Montreal General Hospital for many years and demonstrator in medicine at McGill University, as well as being librarian to its medical library, helping to acquire many valuable additions to its shelves. He voluntecred for service in the recent war, and was appointed chairman of the medical board of M.D. No. 4. In our Association Dr. Wylde was for long the chairman of the Committee on Archives.

He leaves a memory of unchanging sweetness of temper and courtesy. He enjoyed life but gave freely of his time and effort in which his sterling qualities of honesty and simplicity were always immediately apparent. His widow and daughter survive.

NEWS ITEMS

Alberta

At a meeting of the Economics Committee, Canadian Medical Association, Alberta Division, it was proposed that a survey be made of the Province, of the present forms of prepaid medicine in existence. It was felt that the profession should give scrious consideration to the matter of prepaid medicine, and be prepared to assist the C.M.A. in the providing of a plan which, in principle, could be accepted throughout Canada.

The third annual meeting of the Associated Hospitals of Alberta, was held at the Palliser Hotel, Calgary, on November 6, 7 and 8, 1946.

Calgary, on November 6, 7 and 8, 1946.

The Association was formed in 1943 by the amalgamation of the Alberta Hospitals Association and the Alberta Municipal Hospitals Association. Ninety of the approved hospitals are members of the Association.

In his presidential addresss, Dr. A. C. McGugan, Superintendent of the University of Alberta Hospital, spoke of the courteous and sympathetic reception the Association had received from the Minister of Health and officials of the Health Department in all registrations during the past year. He paid particular tribute to the work of the Economies Committee which he believed would result in increasing the annual meome of hospitals in the Province by \$380,000. This Committee, among other things, had arranged for a fifty cent daily increase in maternity rates for hospitals. At the general meeting, resolutions were discussed on means of alleviating the present shortage of trained nurses, as both the city and country hospitals were finding it difficult to obtain full graduate staffs. It was suggested that the Department of Health be asked to arrange for the training of nurses' aides in view of the shortage of nurses. The Economics Committee was asked to enter into negotiations with the Provincial Cancer Diagonstic Clinic for increased operating room rates to be paid by the Clinic and with the Workmen's Compensation Board for a revision of rates for auxiliary services, particularly operating room G. E. LEARMONTH service.

British Columbia

Dr. Harvey Agnew, Secretary of the Canadian Hospital Council, was a recent visitor to Vancouver. While in Vancouver, Dr. Agnew addressed meetings of the B.C. Catholie Hospital Conference, the B.C. Hospitals' Association, and the Registered Nurses' Association of British Columbia.

Dr. Ethlyn Trapp, President of the British Columbia Medical Association, is a visitor in Havana where she is to be one of the speakers at the Inter-American Congress of Radiologists.

A medical staff has been organized recently at the Royal Columbian Hospital in New Westminster. Officers of the new staff are: President—Dr. H. H. Me-Kenzie; Vice-president—Dr. Geo. T. Wilson; Secretary. Treasurer—Dr. W. Brewster; Executive—Dr. W. A. Clarke; Dr. B. Cannon; Dr. J. Margulius.

The Annual Dinner of the Vancouver Medical Association was held in the Hotel Vancouver on November 28, 1946. The record attendance reflected the growing number of doctors in Vancouver. The entertainment, which has always been a feature of these dinners, was of high order and the entire affair was judged a great success.

Dr. J T. Haszard, Chief Medical Officer of the Workmen's Compensation Board, was honoured by the Czechoslovakian Government recently. He was invested at Ottawa with the Order of the White Lion of Czechoslovakia, awarded for distinguished services performed while Commanding Officer of 16 Canadian General Hospital, R.C.A.M.C. in North-West Europe.

Dr. Lavell Leeson and Dr. Roy Huggard attended the Ottawa meeting of the Defence Medical Association held in October, as representatives from the British Columbia Division of the Association.

M. R. CAVERHILL

Manitoba

Plans forwarded by the Manitoba Government to establish a diagnostic centre at Dauphin have been approved by the rural municipalities of Dauphin, Ochre River and Ethelbert. The plan will mean free viay or diagnostic service for any resident in the areas mentioned with the province bearing 33 cents and the municipalities 17 cents of the estimated cost of 50 cents per person. Most of the equipment for the service is already available. Two more doctors will be required to complete the staff. Dr. R. M. Creighton of the Dauphin Health unit says the plan will be put into effect as soon as possible.

Dr. Noel R. Rawson, after spending some years as medical officer of the Eskimos, has resumed his position with the Department of Health and Public Welfarc. For his services in the north Dr. Rawson was recently awarded the O.B.E.

The Manitoba Hospital Association marked its 25th anniversary by opening on October 28 a five day institute for hospital administrators at the Royal Alexandra Hotel, Winnipeg. Dr. O. C. Trainor, president of the association and Mayor Garnet Coulter welcomed 120 men and women. Dr. Malcolm T. MacEachern, Chicago, professor of hospital administration and Dr. Harvey Agnew, Toronto, secretary of the Canadian Hospital Council are taking part in the institute.

On October 22, St. Boniface Hospital celebrated the 75th anniversary of its founding.

Dr. H. S. Evans, Brandon, was made a Fellow of the Royal College of Surgeons of Canada at the 16th annual meeting of the College at Ottawa, November 15 and 16. Other Manitoba Fellows present were: Drs. A. T. Mathers, Lennox G. Bell, G. L. Adamson, M. R. Mae-Charles, J. D. Adamson and Ross Mitchell.

The first Institute for Hospital Administrators and Trustees, arranged by the Manitoba Hospital Association, was held in the Royal Alexandra Hotel, Winnipeg, October 28 to November 2. The Director-in-chief was Dr. Maleolm T. MacEachern, Chicago, Associate Director American College of Surgeons and Professor of Hospital Administration Northwestern University, and assisting him was Dr. Harvey Agnew, Secretary of the Canadian Hospital Council. The institute was well attended and will probably continue as an annual event.

A meeting of the program committee of the Canadian Medical Association was held on Monday, November 4, at the home of Dr. F. G. McGuinness, President-elect of the Canadian Medical Association.

A meeting of the C.M.A. Advisory Committee to the Department of Veterans' Affairs was held in the Medical Arts Club rooms on November 7.

Ross MITCHELL

New Brunswick

Dr. G. B. Peat of Saint John was elected president of the Council of the Order of St. John for the province of N.B. on the amalgamation of the St. John Ambulance Brigade and the St. John Ambulance Association. Dr. W. W. White of Saint John was elected Honorary President of the New Council.

Dr. H. D. Reid, retiring superintendent of Lancaster D.V.A. Hospital was hououred by staff members of the Hospital on his departure to assume a full time position in Ottawa with the Department of National Health and Welfare. Dr. Reid came to Saint John in 1928 as quarantine officer. For the past ten years he has combined this office with that of Chief Medical Officer for New Brunswick for the Pension Branch of the department and superintendent of Lancaster Hospital. Dr. Reid's duties especially during the war were very exacting and during his period of administration Lancaster Hospital has intereased to its present 500 bed capacity. Dr. Reid has interested himself in many community affairs particularly those relating to the benefit of Service Veterans, Saint John Ambulance Association and Red Cross. His many friends wish him well in his new appointment.

Dr. C. O. MacKay of Saint John has vacated his appointment as Departmental District Medical Officer for "K" District to assume new duties as Superintendent of the D.V.A. Hospital at Lancaster.

Dr. Stephen Clark has been appointed Warden of the Municipality of the City and County of Saint John.

A serious fire in Fredericton destroyed the clinic quarters and offices of Dr. G. E. Chalmers, Dr. Robt. Chalmers, Dr. Ross Wright and Dr. J. F. McInerney.

Dr. Geo. Keddy and Dr. George White of Saint John were presented for their Fellowships in Surgery at the recent meeting of the Royal College of Physicians and Surgeons of Canada at Ottawa.

Dr. W. D. Miller and Dr. Arthur F. McInerney have started practice in Saint John.

Dr. Geo. Skinner of Saint John presented a paper on "Empyema" at the Annual Convocation of the Royal College of Physicians and Surgeons of Canada.

Dr. F. C. Jennings of Saint John has been appointed to the Board of School Trustees to succeed Dr. E. W. Lunney, retired.

Dr. S. Taylor, Member for Barnet in the British Parliament was the special speaker at the November Meeting of the Saint John Medical Society. He gave a most lucid and informative explanation of the Social Security plans provided under new legislation by the Labour Government of Great Britain. Naturally he spent most of his time in discussing the medical setup which promises improvement when hospitals, nurses, dentists, doctors, clinies and health centres are available. Some time will of necessity pass before these various shortages are overcome, because the whole nation is still in the slow process of recovery after the last war.

Dr. H. A. Farris, long a na conal figure in antituberculosis work, was elected the first Honorary President of the New Brunswick Tub reulosis Association at the November meeting of the Association in Fredericton.

The new appointments for 1947 to the staff of the Saint John General Hospital show Dr. C. L. Emerson as chief of Surgical Staff, in place of Dr. A. E. Macaulay, retired. Dr. Ger Skinner is advanced in ank to senior surgeon. Dr. A. D. Gibbon was appointed unior Padiatrician. Dr. Jorman S. Skinner is now

chief of the Electrocardiograph Department, vice Dr. H. A. Farris, retired. New appointments include: Indoor Medicine—Dr. H. B. Parlee, Dr. Henrik Tonning, Dr. F. K. Stuart and Dr. A. J. McInerney. Surgery—Dr. V. Sadovsky; Out Door Urology—Dr. L. R. Morse; I' —Dr. A. L. Donovan and Dr. A. I. or Medicine—Dr. F. H. George, Dr. V. M. Zed and Dr. W. D. Miller. A. S. KIRKLAND

Nova Scotia

Damages to the amount, it is reported, of \$30,000 will be claimed by Mrs. Mary Katherine Bugden in an action against Harbour View Hospital, Sydney Mines and Dr. W. T. McKeough of the same place. Also named as defendants are two nurses attached to the hospital. It is alleged that death of the claimant's husband arose from the injection of adrenalin rather than novocaine while he was under treatment in hospital for an injured thumb. The case will be heard at the January term of the Supreme Court in Sydney. As several legal principles are involved of much interest to hospitals and doctors, its progress will be followed closely.

The City of Sydney has just emerged from a severe epidemic of measles. Press reports indicate that there were over one thousand cases. This is regarded as a cyclic year for measles in Nova Scotia.

Halifax has opened a large new addition to its Tuberculosis Hospital which will give much needed accommodation. The problem of securing an adequate nursing staff is a difficult one for the Superintendent, Dr. C. J. Beekwith. Extensive tuberculosis surveys are planned in the immediate future beginning with the school population of the eity.

On December 5 a complimentary dinner was tendered by the Faculty of Medicine of Dalhousie University and the visiting staff of the Victoria General Hospital to four members of both groups who have retired during the year. They are Dr. M. J. Carney of the Hospital Medical Staff and Professor of Padiatrics; Dr. A. E. Doull, head of the eye, ear, nose and throat department of both institutions; Dr. H. K. MacDonald, head of the department of surgery in both institutions; and Dr. Walter L. Muir, senior anæsthetist, Victoria General Hospital and Assistant Professor of the same at the University. All of these men have given long service of the highest character, are equally honoured and admired by their confrères and friends in Nova Sectia and farther afield.

H. L. SCAMMELL

Ontario

The close of the war made possible the implementing of plans for the further development of the medical research work of the Connaught Laboratories. In April, last, the words "Medical Research" were included in the name of the Laboratories which now are known as the Connaught Medical Research Laboratories.

Since 1914 the Laboratories have prepared and distributed public health biological products, and subsequently, through the preparation of insulin, liver extracts, penicillin and other essential therapeutic agents, additional public service has been rendered. The Laboratories were established for research in preventive medicine and related fields. At present more than fifty research studies are being conducted. The new name involves no change in the organization or activities of the Laboratories. Their services in supplying the essential biological and related products will be carried on as usual.

All the insulin made in Canada has been prepared at these Laboratorics. Recently the price has been doubled in the United States, but there has been no increase in the price of insulin in Canada.

Dr. Herbert M. Coleman of Toronto, has announced the opening of an office for the practice of orthopselic surgery. He graduated from the University of Toronto. in 1934, then spent a year as an intern in rotating service at the Toronto General Hospital, one year in Anatomy and Physiology at the University of Toronto, and seven months in practice. He then took postgradu ate work at the Prince of Wales Hospital and St. Mary's East End Hospital, London, England, and a course at the Infirmary, Edinburgh, before getting he FR. S. (Edinburgh). In 1939 he returned to Canada to join the R.C.A.F. He was sent overseas and was stationed at Halton and Weeton with the R.A.P. Orthopodic Service under the direction of Dr. Watson Jones He is now on the consultant staff of Christic Street Hospital.

The secretaries of the fifty-one branch societies of the Ontario Medical Association are holding a one day conference at the Royal York Hotel, Toronto, on January There will be round table discussions on economic problems and on postgraduate education. Dr. William Magner, President of the Association, will preside at the meeting.

Dr. B. C. P. Jansen, Professor of Physiological Chemistry, University of Amsterdam, and Director of the Netherlands Institute of Nutrition, addressed the Physiological Society of the University of Toronto, in November on "The nutritive value of butter, with particular reference to Vaccenic acid". This acid appears to be the growth promoting substance in butter.

Dr. Innsen is doing research this winter at the Benting Dr. Jansen is doing research this winter at the Banting and Best Research Institute.

Dr. Marion Ross has been appointed bacteriologist to Christie Street Hospital. She studied at the School of Hygiene and Tropical Medicine, London for a year before the war, then worked with the Medical Research Council and Ministry of Health until she was permitted to join the R.C.A.M.C. in 1942. She had service in North Africa, Italy and England, retiring with the rank of Lieut.-Colonel.

The Federation of Medical Women of Canada.—At the annual meeting, these officers were elected: Honorary President, Dr. Ellen Douglass, Winnipeg; President, Dr. Margaret Owens, Winnipeg; Vice-presidents: British Columbia, Dr. Isabel Day, Vancouver; Alberta, Dr. Margaret Chase Collins, Edmonton; Saskatchewan, Dr. Anna Nicholson, Saskatoon; Ontario, Dr. Phyllis Bradshaw, Windsor; Quebec, Dr. Eleanor McKenzie, Montreal; New Brunswick, Dr. Alice Brown, Saint John; Nova Scotia, Dr. Margaret Gosse, Halifax; Councillors, Dr. Jessie Scriver, Montreal, and Dr. Florence Murray, Halifax; Acting Secretary, Dr. Mary Eddis, Toronto; Treasurer, Dr. Agnes Moffat, Peterborough; Committee Conveners: Scholarship Fund, Dr. Marion Hilliard, Toronto; Overseas Aid, Dr. Edna Guest, Toronto; Cancer Research, Dr. Lola McLatchie, Calgary; Opportunities for Mcdical Women, Dr. Jessie Grav. Toronto; Archives, Dr. Mary Eddis, Toronto. Dr. Margaret Chase Collins, Edmonton; Saskatchewan, Gray, Toronto; Archives, Dr. Mary Eddis, Toronto. Reports show that of 600 medical women in Canada,

178 are members of the Canadian Medical Association. During the war, 100 were on active service, of these seven served in the Royal Canadian Naval Volunteer Reserve, 79 in the Royal Canadian Army Medical Corps, and 14 in the Royal Canadian Air Force. Squadron Officer Jean Davey received the O.B.E.; Lieutenant-Colonel Marion Ross was the ranking office, both are of Toronto.

Dr. Edna Guest of Toronto.

Dr. Edna Guest of Toronto, Convener of the War Services Committee, has been made an honorary memher of the British Federation of Medical Women. The Canadian Federation has been contributing since 1941 to British women physicians who have been victims of bombing in the United Kingdom. At the present the contributions are going to an English woman medical student who has suffered through bombings; she will graduate in 1948. Gifts from anad an women will continue until after her graduation. It is hoped that she will then be able to come to Canada for an intern year.

The International Association of Medical Women has now revived after the war. The Council is made up of representatives of every country in the world where women physicians are organized. The next Congress meeting will be in Holland in 1947 during the smomer.

On October 28, 1946, the Physiological Society of the University of Toronto was privileged to have as its guest speaker Sir Henry Dale, Past President of the Royal Society of London. He discussed the chemical transmission of nerve impulses, a field in which the speaker himself was a pioneer and outstanding in

Starting with the work of Elliott and of Loewi he traced the growth of the ideas concerning the chemical transmission of nerve impulses. He dealt with the evidence for acetylcholine as the transmitter substance for sympathetic ganglia, postganglionic parasympathetic fibres and motor nerves. The rôle of acetylcholine in synaptic transmission in the central nervous system was discussed and a word of caution introduced concerning the acceptance of acetylcholine as the central mediator for dorsal root fibres. Sir Henry's lucid exposition and his reminiscences made the talk most interesting and memorable.

Dr. H. A. Beatty of Toronto retired this year from his position as Chief Surgeon and Medical Officer for the Canadian Pacific Railway System. In November he was tendered a farewell reception and banquer by officials of the company in the Royal York Hotel. The affair was attended by his successor Major General C. P. Fenwick, officials from the head office of the railway, express company, railway brotherhoods and members of Dr. Beatty's former staff.

Dr. Beatty is still in consulting practice but devotes considerable time to his hobby which is a farm not far

from Toronto.

On November 20, a meeting was held in Owen Sound for the purpose of re-establishing the Grey County Medical Society, and Dr. Douglas Taylor spoke on "Recent advances in the treatment of rheumatic conditions". Dr. A. D. Kelly, Executive Secretary of the Ontario Medical Association was the after-dinner speaker on the subject of "Prepaid medical care". LILLIAN A. CHASE

Prince Edward Island

The Province has had an infantile paralysis (poliomyelitis) epidemic that made its appearance first in the spring months and after sporadic cases showing up during the early summer, flared up in August and September, and now with the cold weather is gradually peterifg out. Ninety-four cases have been reported, with lourteen deaths, almost all of which occurred in adults. To date the cases have been treated in the homes and the various hospitals.

The Provincial Department of Health are now in the process of opening a wing in the Sanatorium to care for the cases with residual paralysis. The ization of this work has been put in the hands of the Provincial Sanatorium Commission and is being directed by Dr. P. A. Creelman. Arrangements have heen made to have Dr. T. B. Acker, of Halifax, and Dr. R. F. Seaman, of Charlottetown, supervise this work. Dr. Acker has made two visits to the Province and has examined fifty cases with paralysis. An additional twenty-five cases have been reported with paralysis, and are now in the process of assessment. It is hoped to be able to collect together in this polio clinic all the cases requiring therapy.

"Men Without Guns" is a book for one's library. There could hardly be a more graphic representation of the suffering of war and the remarkable capacity and endurance with which men face it.

Insight and Personality Adjustment. T. Benedek, Institute for Psychoanalysis, Chicago. 307 pp. \$4.00. The Ronald Press Company, New York, 1946.

This study of the stresses and strains which fell on all of us as a result of the war is a valuable addition to the growing literature of rehabilitation. Dr. Benedek applies the concepts of Freud and his followers in describing and explaining the psychodynamics of the various situations which soldiers and civilians were called upon to meet. It is a study, not of the psychiatric casualties caused by war but of the reactions of the whole population to the abnormal war situation: a situation which none escaped and to which all, in varying degrees, showed some tendencies in thought and be-haviour which were, to a degree, abnormal. The author is interested especially in the problem of the returning veterans of both sexes and in the difficulties which have to be faced when the soldier resumes his civilian life.

The rôle of predisposition to neurosis was appreciated by everyone who had to do with psychiatric problems in the services; Dr. Benedek emphasizes that the reaction of the individual to army life or to separation caused by the service of husband, son, or fiance, was to a great extent determined by the pre-existing conflicts and traits of the personalities concerned. Emotional insecurity due to separation and to immaturity was more frequently the cause of neurosis than was hard-

ship or danger due to the conditions of army service.

The cultural implications of disruption of family relationships are ably discussed, and this book should be of interest to sociologists and welfare workers as well as to physicians. At times, the author is perhaps too serious in estimating the gravity of the reactions she describes. Non-Freudians may be irritated by the wholehearted acceptance of analytic psychopathological concepts as an adequate explanation of neurotic tendencies. But Freudian or no, the reader should find this work an interesting and important study.

Practical Handbook of the Pathology of the Skin. J. M. H. MacLeod, Physician and Hon. Director of the Pathological Department, St. John's Hospital for Diseases of the Skin; and I. Muende, Physician with charge of Pathological Department and Lecturer at St. John's Hospital for Diseases of the Skin. 435 pp., illust., 3rd ed. 50s. H. K. Lewis & Co. Ltd., London, 1946.

In the preface to the original volume, the authors indicated clearly the object and limitations of this book. It is a practical handbook, an introduction to the subject, intended primarily for the student in dermatology and is not a complete treatise on the pathology of the skin. For this the student is referred to the large treatises on the subject of which there are many.

A considerable part of the book is taken up with the embryology and normal histology of the skin, as a knowledge of these is essential to an appreciation of

the pathological changes that occur.

The first six chapters are devoted to the obtaining of biopsy material, its preservation and proper imbedding, and in some detail the staining of the material. The various stains and their method of action are discussed. Six chapters are devoted to a study of the epidermis, beginning with normal histology and embryology and then proceeding to the pathological and congenital changes. The corium, hair, glands, vessels, etc., are treated similarly. Chapters are devoted to the pigment and nails as well.

Among the best chapters are those devoted to the parasitic diseases of the skin, the bacteria, and the dermatophytes. The technique for determining their presence is minutely and clearly described. The profuse use of many excellent illustrations is of distinct value.

This book is recommended as a must for the student and is well worth the perusal of the teacher in dermatology.

Practical Chemistry for Medical Students. W. Klyne, Lecturer in Biochemistry, University of Edinburgh, 660 pp., illust. \$4.50. E. & S. Livingstone Ltd., Edinburgh; Macmillan Company of Canada, Toronto,

This textbook covers the practical work done by medical students in the pre-registration and first year chemistry courses at the University of Edinburgh. The arrangement of the book is somewhat novel: it is divided into five parts, dealing with Physical Chemistry, Inorganic Chemistry, and Organic Chemistry. In addition there are two introductory sections devoted to Fundamental Scientific Ideas and Practical Methods. All students using the book at Edinburgh are definitely committed to the study of medicine or dentistry, and the whole presentation is orientated to fill their needs. The result is a concise work which covers a large area

of science in a very efficient way.

The first part dealing with the nature of scientific work is a very valuable section: it points out the logic and limitations of the experimental method, and if its contents were adequately grasped it should save the student from much confusion at a later stage in his studies. The fundamental principles of general chemistry are lucidly presented; enough theory is included to explain the rationale of the various experiments described, and for the junior student little in the way of a supplemental textbook should be needed. The section on inorganic chemistry gives the chief chemical properties of the various elements, together with their ionic reactions and medical uses. There is with their ionic reactions and medical uses. There is also a fairly complete scheme of analysis for the identification of simple inorganic substances. The section on organic chemistry obviously does not pretend to be complete, but the chief compounds of biological importance are dealt with briefly. In Canada the ground covered is customarily spread over several years of study: in some instances the book may be found inadequate. However, it is a clear and lucid presentation of the basic chemical knowledge which every student must have before embarking on the study of biochemistry. It will be used gratefully by many students as an ancillary source of information; it might well be recommended by those teaching chemistry to premedical students, and could be read with profit by many in a more advanced stage of their careers.

Actions of Radiations on Living Cells. D. E. Lea, Prophit Student of the Royal College of Surgeons, Formerly Fellow of Trinity College, Cambridge 402 pp., illust. \$6.25 (21s.). Cambridge University Press, London; Macmillan Company of Canada Ltd., Toronto, 1946.

This volume is based on work done at the Strangeways Laboratory, Cambridge, during the past decade. It gives an extended discussion of the effects of x-rays and other ionizing radiations on plant and animal cells. The treatment involves a great deal of mathematical analysis, but apart from the mathematics the book contains a fairly complete discussion of the various theories invoked to explain the effects of radiation. Since the most important effect of radiation of whatever sort is probably mediated by virtue of energy changes, it is impossible to treat the subject completely without the use of advanced mathematics. The book should be of outstanding value to research workers in this field, and should interest those radiologists concerned with the more theoretical aspects of their subject.

Clinical Handbook for Residents, Nurses and Students. V. M. Coppleson. 469 pp., illust., 3rd ed. 25s. Angus & Robertson Ltd., Sydney, London, 1946.

This book is a very practical guide to clinical surgery and operative procedures, and is now in its third edition, with much valuable additional information about such

Brand of chorionic gonadotrophin in



STRENGTHS



- * potent
- * economical
- ★ painless on injection

For the treatment of cryptorchidism, Frohlich's syndrome, hypogonadism, menorrhagia and metrorrhagia.



AYERST- McKENNA & HARRISON LIMITED 4

Biological and Pharmaceutical Chemists . MONTREAL, CANADA

intracranial structures to the spaces outlined by air are

The techniques used by the authors are good and one feels that it would have been well to separate them more sharply from those described by other authors. This book certainly should be part of the library of anyone interested in doing pneumoencephalography.

Nutrition, and Chemical Growth in Childhood. Volume II, Original Data. I. G. Macy, Director of the Research Laboratory, Children's Fund of Michigan. 1460 pp., illust. \$13.50. Charles C. Thomas Publish-ing Company, Springfield, Illinois; Ryerson Press, Toronto, 1946.

The title of this work suggests immediately the magnitude of such studies. The investigations are con-cerned with the metabolism of normal children, living under controlled conditions, which approach as closely as possible the environment, habits, nutrition and life

in general of an average child.

In this volume the authors have published in detail the results of the various studies which appeared in Volume I.—This is entitled "Original Data" and in the opinion of the reviewer it is unquestionably the most extensive work published on this subject. The data thus collected are extremely valuable and will serve as standards of nutrition and growth in childhood. Such data will enable investigators of abnormal conditions to compare their findings with those of normal children, without the necessity of obtaining an enormous amount of control data.

The wealth of information in this type of reference volume adds to the difficulty of the reviewer. various aspects of growth and development are studied; e.g., anthropometric measurements, dentition, skeletal maturation, nitrogen studies, mineral balances, hæmatological studies, basal metabolism measurements, heightweight relationships and many other aspects. The rate of development is followed by x-ray examination. This book is such as to appeal to investigators in the problems of nutrition. It is of value to teachers and especially those in prediatrics and biochemistry, and the complete series should be included in the library of every hospital with a pædiatric service. The results of these investigations are to be summed up in Volume III. This will be entitled "Interpretation", and its publication. tion will be awaited with interest.

Principles of Neurological Surgery. L. Davis, Professor of Surgery and Chairman of the Division of Surgery, Northwestern University Medical School, Chicago, Ill. 540 pp., illust., 3rd ed. \$7.50. Lea & Pebiger, Philadelphia; Macmillan Company of Canada, Toronto, 1946.

In this new edition the author has enlarged the size of his book and has increased the number of its illustra-The chapters on Craniocerebral Injuries, Spinal Cord Injuries and Injuries of the Peripheral Nerves have heen expanded as a result of additions to knowledge from war experiences. The book continues to be a valuable and conservative appraisal of the scope of upto date neurological surgery.

Penicillin in General Practice. enicillin in General Practice. J. L. Hamilton-Paterson, Pathologist to Redhill County Hospital, Edgware. 95 pp., illust. 5/-. Staples Press Ltd., Cavendish Place, London, W.1., 1946.

This booklet is offered as a guide for those using penicillin in general practice. There has naturally been much compression but most of the clinically useful knowledge is included and a cautious attitude is held towards those questions which are still in the experi-mental or speculative stage. There are few diagrams and illustrations but the writing style is clear and casy and the average practitioner should have little difficulty in grasping the meanings. The sections dealing with in grasping the meanings. The sections dealing with the history and laboratory investigations are written more convincingly than those on the clinical aspects,

a difference which is probably traceable to the author's

training as a pathologist.

The merits of this little book are greater than its market prospects. More elaborate works on penicillin have already appeared and others are in course of preparation. On this side of the Atlantic the pharmaceutical houses are flooding medical offices with brochures, pamphlets and periodicals, many of which are of large size and all of them attractive or alluring. It is perhaps discouraging to suggest that medical authors must now compete with the literary and financial resources of the drug houses but medical literature is one of the commodities on which there is no ceilingand no floor.

Renal Hypertension. E. Braun-Monendez, J. C. Fasciolo, L. F. Leloir, J. M. Munoz, A. C. Taquini, Institute of Cardiology, V. F. Grego Foundation, -Buenos Aires, Argentina, and Institute of Physiology, Faculty of Medical Sciences. Translated by L. Dexter, Harvard Medical School and Peter Bent Brigham Hospital, Boston, Mass. 451 pp., illust. \$6.75. Charles C. Thomas, Illinois, 1946.

The report of Goldblatt in 1934 stimulated anew the study of the part played by the kidney in the productionof hypertension. Attacks on the problem were begun in many laboratories not only from different angles but with varying methods and objectives. Reports of these investigations grew multitudinous and as the results were sometimes irreconcilable the state of knowledge became chaotic. To bring order from this chaos the authors of this monograph, who are associates of Professor Houssay and also of established reputation in their own right, undertook to assemble, critically analyze and correlate all the important or relevant writings on the subject of renal hypertension. The gratitude due them can be measured by the magnitude of the task accomplished, for the bibliography they have listed runs almost to 84 pages. To make the way of the indolent easier, every chapter is succinctly summarized.

Although this monograph first appeared in 1943 this is the first edition in English. The translator, Dr. Lewis Dexter of Harvard, wisely chose to give a free rendering, thereby avoiding the stodginess and ambiguity which are found so frequently in literal translations. He was able to do this authoritatively because he was a co-worker in Professor Houseay's laboratory, took part in many of the experiments here recorded and had a first-hand

acquaintance with the views of the authors.

Few recent medical publications are so worthy of recommendation. It is at present the most important source of information on renal hypertension and will be indispensable in the laboratory. For the internist be indispensable in the laboratory. For the internist and the urologist it is practically a compulsory study. The general practitioner also will find it enlightening and profitable reading. He may be disappointed to lcarn that his present management of the hypertensive patient has little experimental support, but he will gain the satisfaction which comes from knowing with certainty that his therapeutic ineffectiveness is not unique.

Technical Minutiæ of Extended Myomectomy and Ovarian Cystectomy. V. Bonney, Consulting Gynæcological and Obstetric Surgeon to the Middlesex Hospital, London. 282 pp., illust. \$9.00. Cassell & Company, Ltd., London; McAinish & Company, Ltd., Toronto, 1946.

It is well known to pathologists of surgical and gynæcological hospitals that female genital organs are often sacrificed for indications which are comparatively slight. Out of his tremendous experience Mr. Victor Bonney has realized that in many instances, which formerly would have called for hysterectomy and ovariotomy, a part of the uterus or ovary may be conserved without failure of function. This may add immeasurably to the happiness of the patient. Mr. Bonney points out that conservation as an ideal has many well-springs: compassion for another's misfortune, respect of the craftsman for structure and func-

CRYSTALLINE PENICILLIN — CONNAUGHT

Available in January

Research in the Connaught Medical Research Laboratories now makes available to the medical profession in Canada a highly purified penicillin in crystalline form. Crystalline penicillin has many advantages, among which are the following:

HIGH PURITY — This product is supplied as a white crystalline powder.

MINIMUM OF PAIN OR LOCAL REACTION — Because of its high degree of purity, pain on injection is seldom reported and local reactions are extremely rare.

STABLE AT ROOM TEMPERATURE — Crystalline penicillin is heat-stable, and in the dried form can be safely stared at roam temperature far at least three years. Na refrigeration is required except when the material is in solution.

HOW SUPPLIED

Crystalline Penicillin will be available from the Laboratories in sealed rubber-stoppered vials of 100,000, 200,000, 300,000 and 500,000 International Units.

CONNAUGHT MEDICAL RESEARCH LABORATORIES

University of Toronto

Toronto 4, Canada

JOURNAL OF

Canadian Medical Association

Editorial offices-3640 University St., Montreal General Secretary's office-135 St. Clair Ave. W., Toronto

Subscription rates: The Journal is supplied only to paid up members of the Canadian Medical Association with the following exceptions: for medical libraries, hospitals and doctors residing outside of Canada, the annual subscription is \$7.50; for medical students residing in Canada there is a special rate of \$2.50 per annum. All subscriptions and related correspondence should be addressed to the General Secretary's office at 135 St. Clair Avenue West, Toronto 5, Ontario.

Contributors: Articles are accepted on condition that

they are contributed solely to this Journal.
Reproduction of material in this Journal for commercial purposes is not permitted.

Manuscripts must be typewritten, double spaced, and

the original eopy.

References: in the case of a journal arrange as follows: author (Jones, A. B.), title, journal, volume, page, year. In the ease of a book: Wilson, A., Practice of Medicine, Maemillan, London, 1st ed., p. 120, 1922.

Illustrations: A limited number will be accepted.

Photographs should be clear: drawings should be in india ink on white paper. All unmounted. Legends to be typed separately.

Reprints: May be ordered upon forms sent with galley

proofs.

ADVERTISEMENTS

Advertising copy, layout and cuts should be sent direct to Murray Printing Co., 192 Spadina Ave., Toronto 2-B to reach Toronto by the 10th of the month preceding date of issue.

Classified ads payable in advance.

Rates: \$2.50 for each insertion of 40 words or less, additional words 5c each.

News: The Editor will be glad to consider any items of news that may be sent in by readers.



You can borrow less or more, for shorter or longer periods, at costs that are proportionately the same.

See the manager or accountant of your nearest B of M branch. You will like their friendly, helpful approach to your plans and problems.

BANK OF MONTREAL working with Canadians in every walk of life since 1817

Classified Advertisements

WANTED.—Medical doctor and surgeon to locate in a prosperous community of Prince Edward Island. Home available in village on paved highway; equipped with electricity and modern conveniences. Eighteen miles from Charlottetown. Nursing home a possibility. Protestant preferred. Communicate with J. W. Hayter, New Glasgow, Prince Edward Island.

AVAILABLE.—University of Toronto graduate, army experience, D.P.H., and eight months' experience in chest diseases, wishes experience in general practice, as assistant, locum tenens, etc. Location immaterial. Married man, excellent references. Give full particulars in reply, including type of practice, living accommodation and salary to Box 537, Canadian Medical Association Journal, 3640 University Street, Montreal.

FOR SALE .- One Sterne Portable Ultra Short-Wave Set, complete with 2 large pads, 2 small pads, sinus head piece, desiccation, cauterization, ultra-violet pencil and foot switch. Price \$150.00. Reply to Box 538, Canadian Medical Association Journal, 3640 University Street, Montreal.

FOR SALE.—Doctor's surgical instruments. Apply to Mrs. B. Thomas 723 Bloor Street West, Toronto, Ontario. Phone No. MElrose \$629.

WANTED .- Doctors, both men and women, also nurses, for mission hospitals in North China. Two or three year term. Work through interpreters. Enquire of Board of Overseas Missions and Woman's Missionary Society, United Church, 299 Queen Street West, Toronto.

WANTED .- Doctor urgently required for village of Elnora, Alberta. To serve a population of approximately 3,000. Private practice. Prosperous mixed farming district, well settled, English speaking. Twelve bed hospital under construction. For further particulars write J. D. Buckley, Secretary Treasurer, Elnora Board of Trade, Elnora, Alberta.

WANTED.—(1) A House Surgeon and Anæsthetist, (Now vacant). Salary £600 per annum. Experience in modern methods of anæsthesia essential. Preference given to candidates who hold Diploma in Anæsthesia.

(2) A House Surgeon (Vacant 28th January, 1947). Salary £450 per annum. Preference given to candidates who have had experience in administering anæsthetics.

experience in administering anæsthetics.

In each case quarters fully furnished for a single man, free water and lighting allowance are provided. No local rates. The appointments, which are renewable, will be for either 1½, 2 or 3 years, subject to 3 months' notice on either side to terminate engagement. Candidates must state whether they wish to be engaged for 1½, 2 or 3 years. Single transport direct to Barbados will be paid, a proportionate part to be refunded if term of service for which candidate is engaged be not completed, except engagement is relinquished on medical certificate of ill health due to service. Return transport paid on satisfactory completion of contract or on resignation on medical certificate of ill health due to service. Canadian graduates must hold qualifications registrable in England. Candidates holding a United States degree must be registered in State of New York. Applications, stating age and date of graduation, accompanied by a recent photograph, a medical certificate of physical fitness at time of application and recent professional and personal testimonals, should be sent by air mail to Medical Superintendent, General Hospital, Barbados, B.W.I., from whom further particulars may be obtained. Applicants for post of House Surgeon and Amæsthetist should also forward a recent certificate of proficiency in administering anæsthetics as Resident Amæsthetist of a Hospital of not less than 200 beds, or of a postgraduate course in Modern Amæsthesla at a recognized medical school.

FOR SALE.—Well established lucrative practice in prosperous central Saskatchewan town of 1,200. Good mixed farming district. Local hospital in town: Residence and office combined. Six room house and three room office with separate entrance. Price reasonable. Apply to Box 539, Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Royal College certified Specialist in Internal Medicinc (Exam.), age 34, graduate and postgraduate training in leading European medical centre, eight years' practice in Canada, experienced in electrocardicarable wishes to associate with group or well Saskatchewan except.

Box 540, Canadian Medical Association Jc Street, Montreal.

WANTED CITY logist desires clinic posl-

CLASSIFIED ADVERTISEMENTS-Continued on page XXXV.

UNIVERSITY OF TORONTO

Faculty of Medicine

ADVANCED REFRESHER COURSES

The Faculty of Medicine of the University of Taranta affers Advanced Refresher Courses in Medicine, Surgery and Obstetrics and Gynæcalagy, with teaching in Anotamy, Physiology and Patholagy, fram September 2nd ta October 18th, 1947.

These courses, olthough they provide instruction and preparation for the higher examinations of the Rayol College of Conado, are available to ony graduates in Medicine who desire advanced instruction in the various subjects noted.

Courses will be given far a minimum of seven students and a moximum of twenty students in each subject.

The fee will be \$200.00, poyoble in advance to the Chief Accountant, Simcoe Holl, University of Toronta.

Application is to be made to the Dean of the Foculty of Medicine by April 1st, if possible, and not later than July 1st, 1947.

Condidates registering for these courses, will receive, on request, o list of recammended reading.

Classified Advertisements

WANTED.—Resident, experienced, pathologist. Salary open. Applications accepted by Sister Superior, Misericordia Hospital, Edmonton, Alberta.

WANTED.—Clinic group in busy Ontario city requires the services of a qualified internist, holding either certification in medicine or fellowship in the Royal College of Physicians of Canada. Apply Box 542, Canadian Medical Association Journal, 3640 University Street, Montreal.

INTERNSHIP AVAILABLE.—The Provincial Sanatorium, Charlottetown, Prince Edward Island, a 165 bed Institute, is offering an internship, with salary, to a Graduate in Medicine, Apply stating age, qualifications, experience, and salary required to: The Medical Superintendent, Provincial Sanatorium, Charlottetown, Prince Edward Island.

FOR SALE.—Eye, Ear, Nose and Throat practice in Nova Scotla, 25 years standing, in most desirable residential, college and hospital town Office furnished, complete case histories, instruments. Apply Box 528, Canadian Medical Association Journal, 3640 University Street, Montreal.

H. K. LEWIS & Co. Ltd.

MEDICAL PUBLISHERS and BOOKSELLERS
LARGE STOCK OF WORKS ON

MEDICINE AND GENERAL SCIENCE

of all Publishers.

SECOND-HAND DEPT.: 140, Gower Street, London, W.C.1.

Large stock of recent editions. Rare and out-of-print
books sought for and reported free of charge.

LONDON: 136 GOWER STREET, W.C.1

CABLEGRAMS:-PUBLICAVIT WESTCENT - LONDON

University of Toronto SCHOOL of HYGIENE



Diploma in Public Health

The second term of the present session will commence on

January 27, 1947

Far infarmation regarding this caurse and ι'

DIPLOMA IN INDUSTRIAL HYGIENE

write, The Director, School of Hygiene, University of Toronta, T +o, Ontorio.



BETTER PSYCHOLOGICAL MANAGEMENT OF CATAMENIA



While a woman (during her menses) may reluctantly accept the sense of depression, nervous tension, and in-

creased irritability towards her surroundings as inevitable, she will still be grateful for any suggestion that may ease her burden.

By recommending TAMPAN you can help your patient's emotional attitude towards menstruation by pointing out that (differing from pads) TAMPAN provides

- ... complete INTERNAL protection
- . . . freedom from perineal irritation
- can assure your patients that many in scarcely notice the presence of

TAMPAX—it is so comfortable to wear.

To meet the varying requirements of the individual, TAMPAX is available in "Super", "Regular", and "Junior" absorbencies. The coupon below is for your convenience.

TAMPAX

FOR BETTER PROTECTIVE MANAGEMENT

ACCEPTED FOR ADVERTISING BY THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

C	ANA	DIAN	TAMPAX	CORPORATION	LTD.
B	RAM	PTON	ONTARIO	D	

Please send me a professional supply of the three absorbencies of Tampax.

Name (Please Print)
Address

Prov.

DFOCGI Protective CALCIUM with VITAMINS

Procal sugar coated tablets supply Calcium Phosphate of selected Bone Meal origin plus necessary Vitamins. This <u>natural</u> Calcium Phosphate is more readily assimilated than inorganic forms.

Procal has been specially prepared to adequately provide for the untoward demands during pregnancy and lactation for Calcium, Phosphorus and Vitamin D. Vitamins B1, B2 and C are included as food supplements. Sugar coated to eliminate adverse oral reaction.

Procal is indicated in the growing period of life. Assimilated Calcium overcomes: poor or delayed dentition — Undeveloped or soft finger and toe nails — So called growing pains — Night terrors and nervousness — Malnutrition and lack of weight gain — Rickets or theatened rickets.

Formula:

Each tablet contains:

Bone Meal (Natural Calcium Phosphate 3 grs.)	9 9	grs.
Vitamin D 300 Int	U	nits
Thiamine Hcl. (Vitamin B ₁) 0	5 r	ng.
Riboflavin (Vitamin B ₂)	5 1	πg.
Ascorbic Acid (Vitamin C)	0 1	ng.

Directions:

Two tables morning and evening a corresponding for the physician.



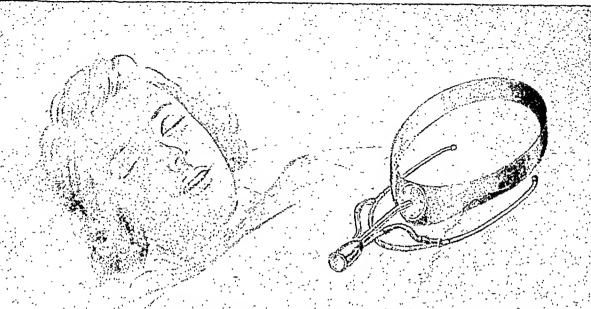
owatt & Moore Ltd

We Suggest for Children

B. M. Discs

Each palatable saccarated disc supplies 7½ grains of specially selected edible bone meal plus 500 I. U. Vitamin D, .5 mgs. Thiamine Hcl. and .5 mgs. Riboflavin.

Directions: Two discs per day - to be chewed.



SMOOTH LABOR

Demerol, the potent, synthetic analgesic, spasmolytic and sedative, relieves labor pains promptly and effectively without danger to mother and child. There is no weakening of uterine contractions, lengthening of labor, or postpartum complication due to the drug. Bad effects on the newborn are practically nil: no respiratory depression or asphyxia from too much analgesia of the mother. Simplicity of administration is another commendable feature.

WRITE FOR DETAILED

Narcotic blank required

Available in ampuls (2 cc., 100 mg.); vials (30 cc., 50 mg. / cc.).

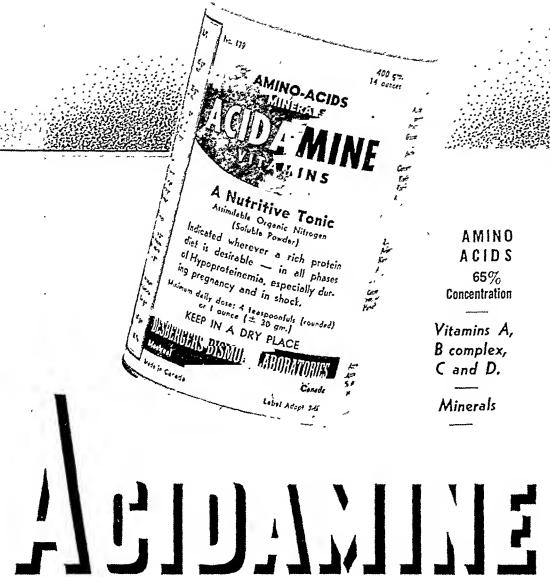
DEMEROL HYDROCHLORIDE

Brand of meperidine hydrochloride (isonipecaine)

CHEMICAL COMPANY, INC.

New York 13, N. Y. • Windsor, Ont.

DEMEROL, trademark Reg. U. S. Pat. Off. & Canada



A New High in Amino Acids Therapy

A Palatable, Readily Assimilable, Potent Tonic in Powder Form

ACIDAMINE, synonym for palatability and high gastric acceptance in Amino Acids Therapy. Incorporating Vitamins and Minerals, this Tonic Nutritive is indicated in all manifestations of Hypoproteinemia.

Daily Dose: 4 teaspoonfuls (rounded).

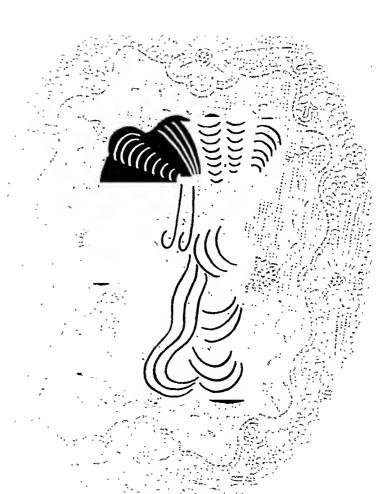
Produced by the Canadian Pioneer Manufacturers of Amino Acids

DESBERGERS-BISMOL LABORATORI

Executive Offices, 388 St. Paul St. West

Montreal

Cana





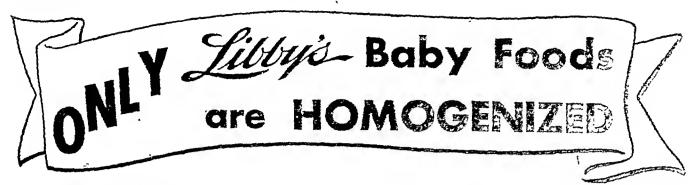
(ESTROGENS DESBERGERS)

NATURAL Conjugated Estrogenic Substances FOR ORAL USE

Plain or with Phenobarbital ½ grain

DESBERGERS-BISMOL LABORATORIES 388 St. Paul St. West

Montreal, Canada





Homogenization removes indigestible factors

While authorities agree that the addition of solid foods to the infant's milk diet at the earliest possible age is sound nutritional practice, many doctors have hesitated to prescribe them during the early months of infancy because of the danger of gasto-intestinal disturbances caused by coarse vegetable fibres, and of the passage of incompletely digested food into the large intestine. Libby's patented Homogenization process which explodes food cells and comminutes vegetable fibres overcomes both these objections. Clinical tests have demonstrated that when Libby's Homogenized Baby Foods are added to the diet as early as the second month, they cause no gastro-intestinal disturbance, and they supply valuable food elements not supplied by milk, notably iron and certain vitamins. Because only Libby's Baby

Foods are Homogenized, only with Libby's can this additional nutrient required for optimal nutrition be made available so early in life without the risk of digestive upsets.

REPORTS ON CLINICAL AND LABORATORY STUDIES WILL BE SENT ON REQUEST

Garden Vegetables

Carrots

Peas

Spinach

Liver Soup

Vegetable Beef Soup

Vegetable Soup

Prunes

Apples and Apricots

Custard Pudding

Libby's Homogenized Evaporated Milk



In Eczema

or whenever coal tar therapy is indicated . . .

SUPERTAH (NASON'S) "has proven as

Valuable as the black coal tar preparations"

Swartz and Reilly, "Diagnosis and Treatment of Skin Diseases," p. 66

SUPERTAH is WHITE — not black — so hardly noticeable on the skin.

Easy to remove. Will not stain or discolor skin, bedding, clothing. No tarry odor.

Non-irritating and nonpustulant, can be left on indefinitely with no fear of dermatitis.



Patients use SUPERTAH willingly — freed from the objectionable features of black coal tar ointments.

SUPERTAH (NASON'S) is distributed ethically in 2 oz. jars (in 5% or 10% strength)

TAILBY-NASON COMPANY, Kendall Square Station, BOSTON 42, MASS.



FOLIC ACID Lederle

A TREATMENT FOR MACROCYTIC ANEMIAS

This extraordinary substance that affects red blood cell maturation specifically is now indicated in all cases of sprue and the macrocytic anemias of pregnancy, childhood, and pellagra. In pernicious anemia folic acid administered with liver extract may be superior to either alone.

*Reg. U. S. Pat. Off.

ORAL DOSAGE

In adults—5 to 20 mg. daily in divided doses. In children (regardless of age)—5 to 10 mg. daily. Resistant cases may require larger dosage.

PARENTERAL DOSAGE

The parenteral form of folic acid should be used in the macrocytic anemias if the discase is severe or resistant to treatment, or if gastrointestinal absorption is impaired. Parenteral administration of this product should be given intramuscularly in the following dosage:

Adults-15 mg. once daily.

Children (regardless of age)-15 mg. once daily.

MAINTENANCE DOSAGE

When clinical symptoms have subsided and the blood picture has become normal, a maintenance dose of one-half the above dosage should be used, but never less than 5 mg. per day. Patients should be kept under close supervision, and adjustment of the maintenance dose made if relapse appears imminent.

TABLETS - Tubes of 25, and bottles of 100 tablets, 5 rig each tablet.

SOLUTION - Ampuls of 1 ce, 15 mg. per cc.

LEDERLE LABORATORIES DIVISION

NORTH AMERICAN CYANAMID LIMITED • 1396 ST. CATHERINE STREET WEST MONTREAL 25, QUEBEC Distributor

LISTEN to the latest developments in research and clinical medicine discussed by eminent members of the medical profession in the Lederle radio series, "The Doctors Talk It Over," broadcast coast-to-coast every Monday evening over the American Broadcasting Company network and affiliated stations.



INFA-CONCEMIN

Vitamin B Complex with Ferrous Sulfate

Each 1 cc. contains:	
Thiamine hydrochloride	0.8 mg.
Riboflavin	
Niacinamide	5.0 mg.
Pyridoxine hydrochloride	05 mg.
Liver, B complex fraction	67.5 mg.
Rice bran extract.	67.5 mg.
Ferrous sulfate	37.5 mg.

Unusually palatable and easily administered directly by mouth, or with liquids or cereal, Infa-Concemin is especially useful in treating deficiency states associated with malnutrition, restricted growth, anorexia and irritability, and as a tonic in post-sulfonamide debilitation and the recuperative phases of severe respiratory infections. Average dose: 1 to 3 cc. (20 to 60 drops) daily.

"Infa-Concemin" is a Registered Trade Mark of The Wm S. Merrell Company



THE WM. S. MERRELL COMPANY . CINCINNATI, U. S. A. CANADIAN DEPOT: 1705 ST. CLAIR AVE. W., TORONTO 9, ONT.

ERACT "DESERT MOSE"

HE distressing dryness of sensitive, vascularized nasal mucosa-occurring during the prodromal stage of coryza, as a result of climatic conditions, or subsequent to the instillation of aqueous nasal medicationmay, frequently be prevented or relieved by the administration of Pineoleum Compound. Intranasal application by dropper or spray causes a protective oily film to be spread over the membranes, sealing in their natural moisture (requisite for nasal health and comfort) - and locking out micro-organisms provocative of more serious respiratory complications. o Proved thoroughly safe for normal

o Proved thoroughly safe for normal adult use in controlled clinical experiments*, Pineoleum is gratefully received by patients. For additional tissue shrinkage, an effective—but rebound-free — dosage of ephedrine is supplied in Pineoleum with Ephedrine.

Formula: Pincoleum Compound contains compor (0.50%), menthol (0.50%, eucaloptus cil (5 %), pinc needle oil (1.00%), and cassil oil (.07%) in a liquid petrolatum base—plain or with epiedrina (0.50%).

Dosage Forms: Available in dropper bottles; with complete atomizer set.

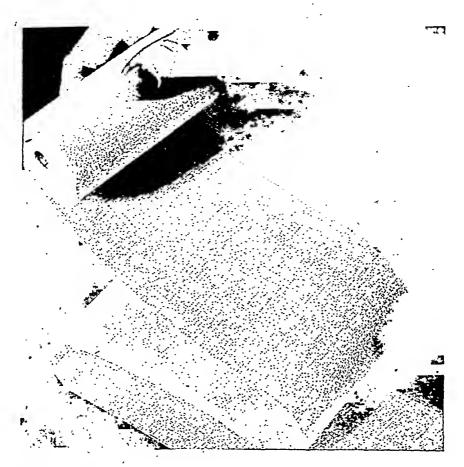
Griesman, B. L.: Arch. Otolaryngology 39:181, 1944: abst J.A.M.A. 125:173, 1944: Yearbook of Eye, Ear, Nose & Throat, 1944. p. 309. Also Novak, F. J., Jr.: Arch. Otolaryngology 38:241, 1943.

LYMANS, LIMITED

Montreal, Canada

PINEO

† Reg. U.S. Pat. Off.



The new Trade-mark for 'Cellona' is 'Gypsona'

N the interests of surgery and of Empire Trade, it has been decided that 'Cellona' should have a universal trade-mark. From April 1st. 1946, our 'Cellona' Plaster of Paris bandages have been distributed under the trade-mark 'GYPSONA'. During the war, large quantities of these Plaster of Paris bandages have been sold under this trade-mark in non-British territories. Its adoption in British territories will unify the name and ensure immediate identification in all parts of the world.

The change is one of name only. The quality and properties of the product have not been altered. It is made in England.





Distributors: SMITH & NEPHEW Ltd., 378 St. Paul Street West, Montreal, Made in England by T. J. Smith & Nephew Ltd., Hull.



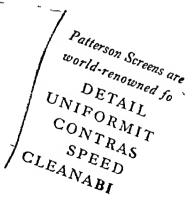
AT FIRST NOTE the great pianist recognizes the quality of a truly fine instrument. So, too, the roentgenologist recognizes fine equipment as essential to express his high skill in the diagnostic radiograph.

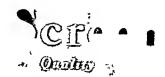
That is why most of the world's roentgenologists rely on Patterson Intensifying Screens. That is why Patterson has been the standard of screen quality for more than 30 years. Your dealer has a complete stock. Patterson Screen Division. E. I. du Pont de Nemours & Co. (Inc.). Towanda. Pennsylvania.



BETTER THINGS FOR BETTER LIVING
. THROUGH CHEMISTRY

(Listen to "Cavalcade of America"-Monday Evenings, NBC)





The Canadian Medical Protective Association

PRESIDENT - JOHN F. ARGUE, M.D.

A mutual medical defence union founded in 1901, Incorporated by act of Dominion Parliament, February, 1913, and affiliated with the Canadian Medical Association, 1924.

OBJECTS: To assist in the defence of its members in cases of alleged malpractice, and to encourage honourable practice in the daily work of the medical profession.

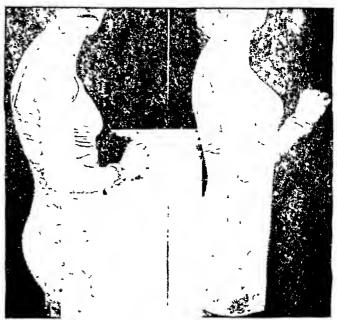
Subject to our by-laws, assistance is given by the payment of the taxable costs of actions together with reasonable counsel and witness fees in cases undertaken by our Association, as well as damages if awarded. All members in good standing of the Canadian and various Provincial Medical Associations may be enrolled upon signing the application form and paying the annual fee. All other regularly qualified practitioners must have their application countersigned by two members of our Association.

Address All Correspondence to the Secretary-Treasurer, Suite 401, 180 Metcalfe St., Ottawa, Canada

APPLICATION FOR MEMBERSHIP

I, aged, a Print name in full. qualified practitioner of the Regular School of Medicine hereby apply to be enrolled as a member of the Canadian Medical Protective Association.
I am a graduate of
in the year, and a duly licensed practitioner
of the Province of I am also
a member in good standing of
Signature
Address
Recommended by two members of the Association, unless applicant is a member in good standing of the Canadian or any Provincial Medical Association.
Dated at 19
The annual fee is five dollars per calendar year, half rates after July 1st. (Payable at par, Ottawa.)

Do You Agree That Patients Respond Better To Treatment When Posture is Improved?



Woman in ordinary support and brassiere that encourage faulty posture unfavorable to treatment.

Same woman in the Spencer Support and Breast Support individually designed for her.

A Spencer Support

Individually Designed for Each Patient supports weakened musculature yet permits muscle activity to aid nature in restoring tone. It improves posture markedly by accurately correlating abdominal and back support to modify an abnormal pelvic tilt.

The helpful support provided by a Spencer and the better body mechanics induced have a favorable influence on patient's general health, mental attitude and response to treatment.

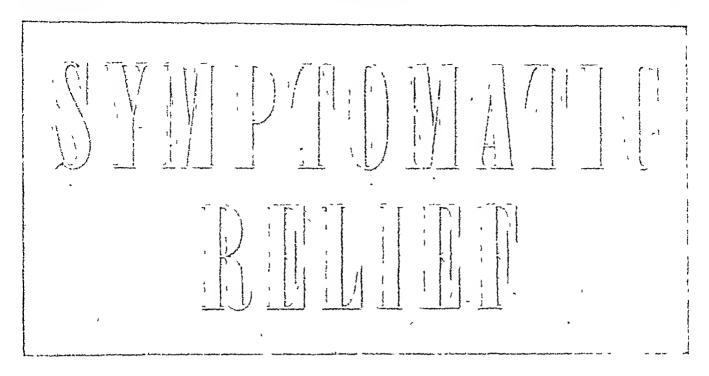
Spencer designers create abdominal, back and breast supports for each individual patient. Hence, each patient's needs are met with exactitude. (Spencer Supports for men are masculine in appearance.)

For a dealer in Spencer Supports look in telephone book under "Spencer corsetiere", or write to us.

SPENCER INDIVIDUALLY SUPPORTS

For Abdomen, Back and Breasts

The sale name because desired
MAY WE SEND YOU BOOKLET?
SPENCER SUPPORTS (CANADA) LIMITED Rock Island, P.Q.
In U.S.A.: Spencer, Incorporated, New Haven, Conn.
in England: Spencer (Banbury) Ltd., Banbury, Oxon. Please send me booklet, "How Spencer Supports Aid the Doctor's Treatment."
Name M.D.
Street



During the next few months, there will be an increase in affections of the Respiratory Tract.

Chest Colds

Tonsilitis

Trache it is

Bronchitis

Pneumonia

Pleurisy

Many clinicians have recognized the value of externally applied moist heat in relieving the troublesome symptoms so often present in these conditions.

Cough

Retrosternal Tightness

Muscular and Pleuritic Pain

Soreness of the Chest

ANTIPHLOGISTINE as a medicated poultice offers a convenient, easy to apply method of getting moist heat to the affected area. It may be used with Chemo-therapy or other special medications.



ANTIPHLOGISTINE, due to its formula, maintains moist heat for many hours.

(Made in Canada)

Antiphlogistic

MEDINGROUP MADE BY

TONTROLL MANUFACTURING OF THE AL, CANADA

(It corporated 1893)

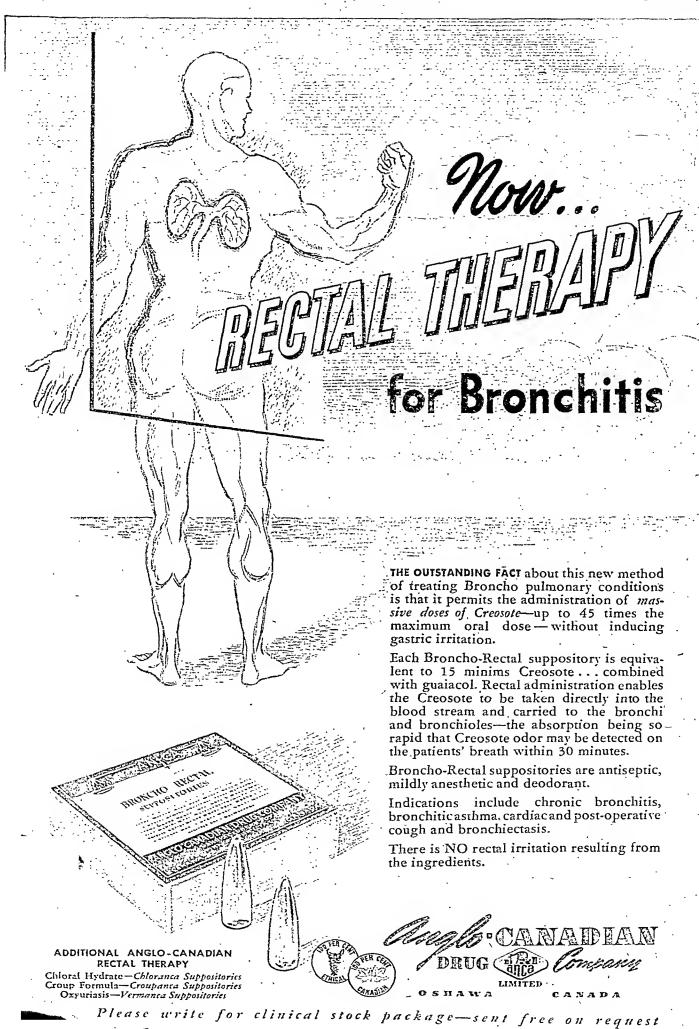
ANTIPHLICAL AIRLS LONDON MANUFACTURING OF THE ALL ON THE AIRLS LONDON OF THE AIRLS AIRLS LONDON OF THE AIRLS AIRLS LONDON OF THE AIRLS AIRLS

THO DE JANFIPO PAPE

Antiphlogistine

THE DENVER CHEMICAL MFG. CO.

286 St. Paul Street, West, Mo





Your Newest Patients Appreciate Foods with

Fine Flavour, Colour and Texture

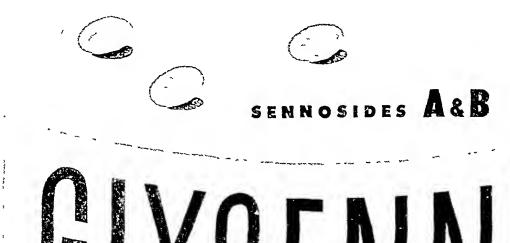
PRESCRIBE HEINZ BABY FOODS FOR THEIR ENJOYMENT

Nobody knows, better than the doctor does, the importance of starting baby on foods which have appealing flavour, colour and texture. Heinz Baby Foods rate high on all three counts. And they're backed by one of the oldest and finest quality traditions in the food industry.





FREE TO DOCTORS, NURSES AND DIETICIANS—Nutrition Charts and data on Infant Feeding and Strained Foods. For free copies write H. J. Heinz Company of Canada Ltd., 420 Dupont Street, Toronto, Ontario



GLYSENNID ENSENNID

FOR ATONIC CONSTIPATION



ADULTS: 2 to 4 tablets daily

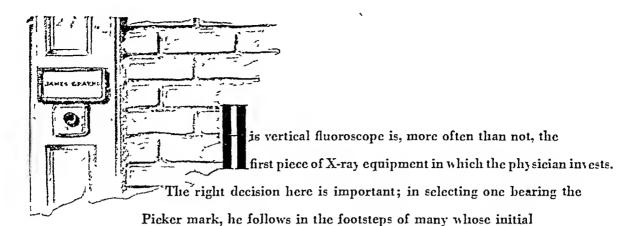
CHILDREN: 1 to 2 tablets daily

Samples and literature on request



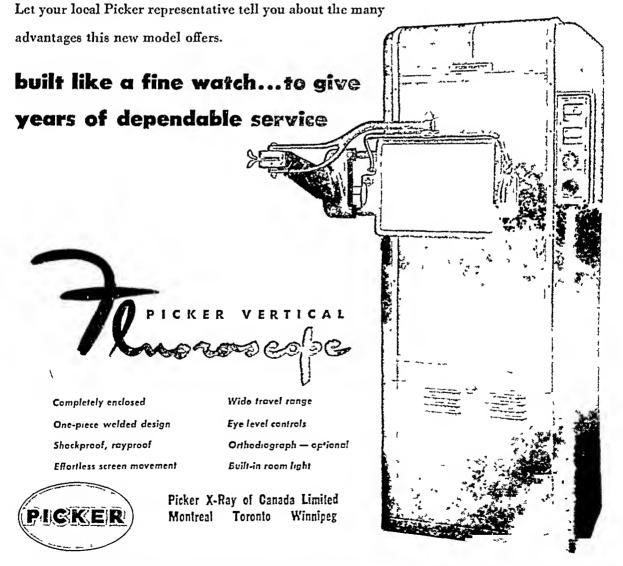
THE WINGATE CHEMICAL COMPANY LTD.

MONTREAL



judgment has been gratifyingly rewarded by long years of dependable service.

For the Picker Vertical Fluoroscope, like all other Picker x-ray apparatus, is built to the highest standards, although its cost is no strain on even the modest budget.



SINCE 1879 PIONEERS IN THE MANUFACTURE OF ELECTRO-MEDICAL APPARATUS

Clinical Indications of STREPTOMYCIN

STREPTOMYCIN IS EFFECTIVE in the treotment of: Urinory Troct Infections, Bocteremio, and Meningitis due to susceptible stroins of the following organisms:

Esch. coli

B. Loctis oerogenes

Proteus vulgoris

Ps. oeruginoso (B. pyocyoneus)

Klebsiéllo pneumonioe (Friedländer's bacillus).

TULAREMIA
All H. influenzae infections

Streptomycin is a helpful agent also in the treatment of the following diseases, but its position has not been clearly defined:

Tuberculosis.

Peritonitis due to susceptible organisms.

Pneumonio due to Klebsiello pneumoniae (Friedländer's baeillus).

Liver obscesses due to streptomycinsensitive bocilli.



Cholongitis due to susceptible pothogens.

Endocorditis coused by penicillinresistont, streptomycin-sensitive organisms.

Chronic pulmonory infections predominontly due to streptomycin-sensitive floro.

Empyemo due to susceptible organisms.

STREPTOMYCIN MERCK

(HYDROCHLORIDE)

MADE IN CANADA

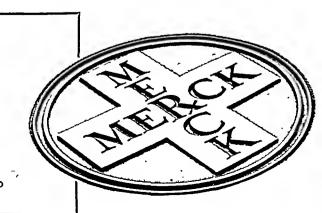
MERCK & CO. LIMITED

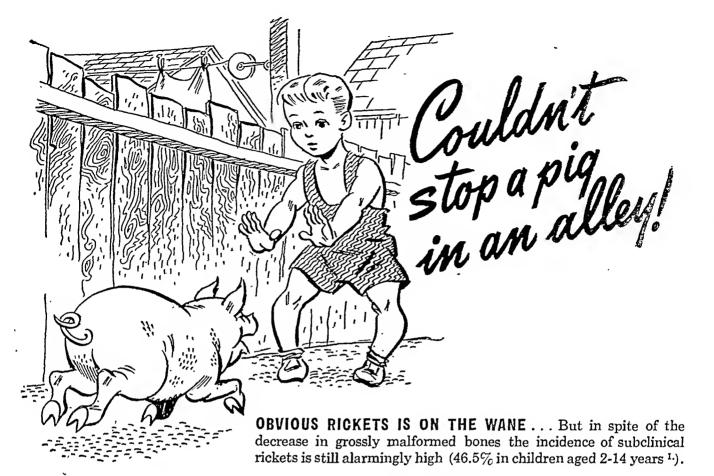
Manufacturing Chemists

MONTREAL

TORONTO

VALLEYFIELD





DENTAL CARIES IS NOT ON THE WANE... But the significance of fluorine in relation to dental health has become well established and the prospect looks bright for the coming generation.

FLUORINE... Orical E.B.S. contains 1/80 grain of Fluorine in each tablet.

PALATABLE... Orical E.B.S. has taste appeal for youngsters.

Contents of Orical Tablets . . .

5 gr. BONE MEAL (Calcium ... 25%

Fluorine . 0.25% Phosphorus 11%

VITAMIN D 400 Int. Units

THE E.B. SHUTTLEWORTH CHEMICAL CO., LTD. 525 LOGAN AVENUE, TORONTO 6

A wholly Canadian Company
ESTABLISHED 1879

ORICAL E.B.S. IS RICH IN CALCIUM, PHOSPHORUS AND VITAMIN D, ALL NECESSARY FOR ADEQUATE BONE NUTRITION

Please note: We have discontinued selling this preparation under the name "Calfos" in view of possible confusion with a trademark used by another manufecturer. There has, however, been no change in the character or quality of our preparation now offered under the name "CTNo 175 Orical E.BS"





DIAGNOSTIC SETS

Standard Gowlland Diagnostic Sets (as well as many other instruments) have been supplied as standard equipment for the Armed Forces of the British Dominious and Colonies, and many of the Allies.

Manufactured in very large numbers by a firm with over half a century's experience of Surgical Instrument making, Gowlland brand Instruments have been produced in that corner of England known as the Front Line and have been fully proved by successful use under Active Service conditions throughout the War.

Obtainable from all Surgical Supply Houses.

OWIANO
electric diagnostic instruments

Madeşin England

STOCKED BY BRANCHES OF THE STEVENS COMPANIES

DEADLINE

May 1st, 1947 is the deadline for entering the \$34,000 prize art contest on the special subject of "Courage and Devotion Beyond the Call of Duty" (on the part of physicians in war and in peace). This contest is open to all M.D.'s in the Western Hemisphere. The exhibition will take place in conjunction with the A.M.A. Centennial Session at Atlantic City, June 9-13th, 1947. For complete information, write or wire now to Francis H. Redewill, M.D., Secretary, American Physicians Art Association, Flood Building, San Francisco, California, or to the sponsor, Mead Johnson & Company, Evansville 21, Ind., U.S.A.

DESIRABLE ASSISTANTS

for your institution

can be secured through

A CLASSIFIED ADVERTISEMENT

in the JOURNAL

WYANOIDS

FOR HEMORRHOIDS



The NEW Safety Chair that PROTECTS Baby from SERIOUS FALLS

Thousands of Doctors and Nurses recommend the BABEE-TENDA Safety Chair because they know from actual experience that falls from high chairs can be serious and fatal to Baby. BABEE-TENDA cannot be pullod or tipped over because it is low and square, 22" high and 25" square. A Safety Halter Strap positively prevents Baby from climbing out and mother can go about her work without fear for Baby's safety. The BABEE-TENDA Safety Chair is the first revolutionary improvement since the high chair. Very highly recommended by Baby Specialists because it protects Baby from SERIOUS FALLS. Specialists say that Baby should not be fed at the family table — there are too many distractions that lead to emotional upsets and result in bad feeding habits. Use the BABEE-TENDA Safety Chair to develop proper feeding habits. Recommend to mothers for Babies at sitting up age.

Copyright 1945 by The Babee-Tenda Corp. of Canada, Ltd.



Some of BABEE-TENDA

advantages

over

high chairs





EASILY CHANGES

NOT SOLD IN STORES

Sold only direct to you through authorized agents. Write for free instructive folders and name of nearest agent.

THE BABEE-TENDA CORPORATION OF CANADA, LIMITED 347 Bay Street Dept. CM Toronto 1, Ontario



A "natural" aid in treating Constipation

In dietary treatment of constipation, Old York Cereal has proven of genuine value. Old York contains bran, flax, wheat and corn, scientifically blended into a delicious non-heating, non-fattening cereal which provides bulk, roughage and natural oil for lubricating the digestive tract.

This laxative food gently and naturally rids the intestines of injurious waste.

Delicious as a satisfying hot porridge, or made into date bread or muffins, according to directions on the package. Preferred by many users in its natural uncooked state.

Introductory Offer to Physicians

A generous sample of OLD YORK will gladly be sent to physicians wishing to test its efficacy.

DURUM CEREALS LTD. 858 Dupont St., Toronto



FINANCIAL COLLECTION AGENCIES

"The Largest in Canada"

Established on a firm foundation of over twenty years' wide practice and experience, FINANCIAL COLLECTION AGENCIES offer a Complete Collection service for DOCTORS.

HEAD OFFICE 8th Floor, Federal Bldg. TORONTO

MONTREAL . HAMILTON . WINNIPEG QUEBEC CITY SAINTJOHN, N.B.



ANGIER'S EMULSION

This widely prescribed therapeutic adjunct is particularly useful in the treatment of coughs associated with acute Winter ills. It exerts a dependable, persistent action and desirable degree of safety, for any age.

Aside from its tendency to soften and dislodge viscid secretions in the throat and assist in their expulsion, it serves to reduce the frequency and severity of cough seizures. Of unusually high viscosity, it provides a tenacious protective coating to the membrane of the throat and gives the patient desired relief from the harsh sore feeling of the throat.

Equally important—the ability of Angier's Emulsion to mix intimately with the stomach contents. It provides against the cumulative retention of toxic residue and inhibits the propagation of putrefactive bacteria. Digestion and assimilation appear to be improved when Angier's Emulsion is taken t.i.d.—p.c.

Angier's Emulsion is often used to excellent advantage in prescriptions with companion medication. The formula contains no sugars, alcohol or narcotics.

Canadian Distributors:

The Wingate Chemical Co. Limited

378 West St. Paul Street - Montreal, P.Q., Canada



COUNCIL ACCEPTED

More Comfort for the Cardiac Patient

Prescribe Theocalcin I to 3 tablets t. i. d. to diminish dyspnoea, reduce edema and bring comfort to your cardiac patients. Theocalcin is a well tolerated diuretic and myocardial stimulant.

Theocalcin (theobromine-calcium salicylate) is available in 7½ grain tablets and as a powder. Theocalcin Trade Mark reg. U. S. and Canada. Manufactured by BILHUBER-KNOLL CORP.

MERCK & CO. Ltd. Selling Agents
560 De Courcelles Street, MONTREAL







For Effective
Mouth Cleansing

How Lavoris Acts: It coagulates, detaches and removes objectionable matter and stimulates the tissues.

CLASSIFIED ADVERTISEMENTS

in the

JOURNAL BRING RESULTS

WYANOIDS

FOR HEMORRHOIDS

ARTIFICIAL LIMBS



THE HANGER LIMB CO.

Established 1861

Specializing on light Dural Metal and English Willow Limbs worn without Shoulder Straps.

Improved and successful method in fitting short thigh stumps and hip disarticulations.

It is our policy to consult Surgeon before soliciting patient.

Special Service freely given to patients in preparing stump limb and personal training in the use of Hanger Limbs.

TRUSSES, BELTS, BRACES

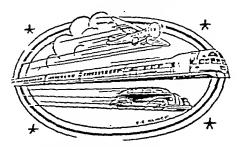
Treatise on amputations.

Catalogue and demonstration giren on request.

85 KING ST. WEST, TORONTO Phone EL. 5797

1409 CRESCENT ST., MONTREAL
Phone LA. 9810

D. COLLECTEM



The amazing SPEED with which the Medical Audit will bring you in the money from your past-due accounts will delight you, Doctor!

Resolve you'll make 1-9-4-7 most "Prosperous" for you and your family — by obtaining the very highest cash return from your practice.

"No Collection, No Charge" - - Always!

THE MEDICAL AUDIT ASSOCIATION
44 Victoria Street, Toronto 1

MAIL US YOUR LIST TO DAY!

IF ARTHRITIS and ECZEMA ARE ALLERGIC ETIOLOGICALLY

effective treatment suggests the use of agents to correct mineral deficiency, increase cellular activity, and secure adequate elimination of toxic waste.

LYXANTHINE ASTIER

orally given, supplies calcium, sulphur, iodine, and lysidin bitartrate an effective solvent. Amelioration of symptoms and general functional improvement may be expected.

Write for information

L-15

Canadian Distributors

ROUGIER FRERES

350 Le Moyne Street, Montreal

TAXOL

FOR, CONSTIPATION NON HABIT FORMING

CAROVIT

Provitamin A and Chlorophyll tablets

ANAEMIAS, NERVOUS FATIGUE, NIGHT BLINDNESS

CONTINENTAL LABORATORIES

LONDON - ENGLAND

J. EDDÉ Ltd., New Birks Bldg., MONTREAL
GENERAL AGENTS FOR CANADA

Samples on request

SOUBBIOCOPHEREX



Each capsule contains 50 milligrams of mixed tocopherols, equivalent in vitamin E activity to 30 milligrams of a-tocopherol.

Tocopherex contains vitamin E derived from vegetable oils by molecular distillation, in a form more concentrated, more stable and more economical than wheat germ oil.

Tocophares

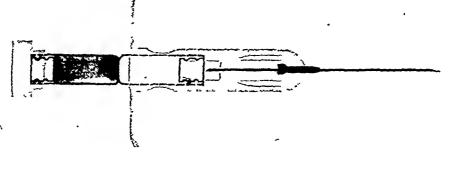
SQUIBB

For Literature write—E. R. Squibb & Sons of Canada, Ltd., 36 Caledonia Road, Toronto

FOR PROLONGED ACTION—EASIER ADMINISTRATION

SQUIBB Michillan

IN OIL AND WAX



PROLONGED ABSORPTION "... penicillin-beeswax-peanut oil mixtures provide an effective and safe method of prolonging the action of penicillin in the body." 1

HIGH PENICILLIN BLOOD LEVELS Peak blood levels of 0.06 to 1.00 unit are attained in six to twelve hours with at least 0.03 unit at twenty-four hours.²

EASIER ADMINISTRATION "A single daily dose of 300 000 units in 4.8 percent beeswax by weight in peanut oil contained in I cc. should be adequate for all but overwhelming infections."

EASIFR INTECTION The new Squibb Penicillin in Oil and Wax is less viscid and flows more readily. Preheating is unnecessary if cartridge is kept at room temperature for 12 to 24 hours. If to be used directly when removed from refrigerator, it is readily highered by holding under hot water tap (not over 140° F.) for 3 to 5 minutes.

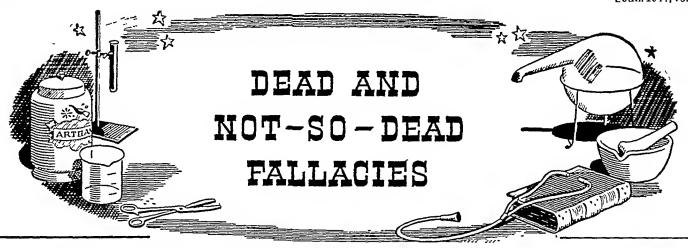
SALLINAND LONGIN The new double-cell cartridge contains 300,000 units of penicillin in one 1 c.c. cell; the second cell contains Aspirating Test Solution to prevent accidental intravenous injection. The metal syringe and replaceable needle can be used repeatedly. Squibb Penicillin in Oil and Wax is also available in 10 cc. vials.

- Kirby, W. M. M. Leiler, W., Martin, S. P., Farmeliamp, C. H., and Kinston, J. M. J.A.M.A. 129:940 (Dec. 1) 1945.
- 2 Nichols, D. R., and Haurz, E. A.: Pres. Staff Meet. Mayo Clinic 20 403 (Oct. 31) 1945.
- 3 Romansky, M. J., and Rittman, G. E.: New England J. Med. 233.577 (Nov. 15) 1945.

FOR LITERATURE WRITE

186

E. R. SQUIBB & SONS OF CANADA LTD.





For several generations, persons with burns thought that they were getting effective treatment if they held the injured part before a fire. This was supposed "to draw out the inflammation."



Equally unscientific is the belief of many modern folk that it is not safe to leave food in open cans. Actually, according to the U. S. Department of Agriculture, the food is just as safe in open cans — when kept cool and covered.

COMPANY



A M E R I C A N C A N
MONTREAL HAMILTON TO

TORONTO

VANCOUVER

Now available on request—
"THE CANNED FOOD
REFERENCE MANUAL"

—a handy source of valuable dietary information. Please fill in and mail the attached coupon.



AMERI	CIN	CAN	COMPANY	
Medical	Arts	Buildin	g, Hamilton,	O

Please send me the new Canadan edition of "THE CANNED FOOD REFERENCE MANUAL," which is free.

Name

Professional Title

lddress

City Province

Drovingo



he medicinal cod liver oil industry in Canada started when war was declared in

1939. The government aided fishermen of the Atlantic seaboard

plants for the production of fine oil. The cod

livers are brought in fresh from the sea. Careful

to set up clean modern

assay of the oil proves

that it meets all requirements of B.P. and U.S.P. for vitamin A & D content. The

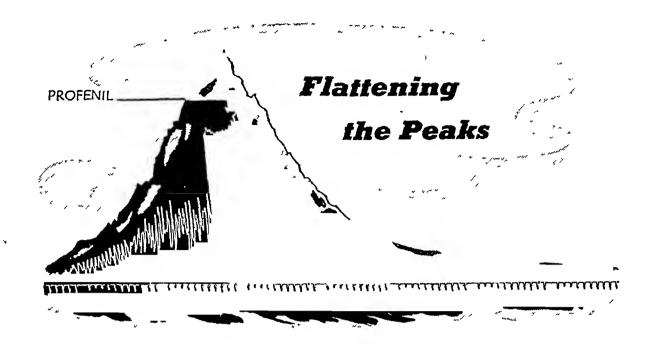
Canadian product is as good, and in some respects, superior to oil

imported before the war. The Canadian cod liver oil producers need the support

of physicians and the pharmaceutical companies, bottling cod liver oil, to keep

this new industry alive in peace time.

Atlantic Cod Liver Oil Producers' Association



Clinical results with PROFENIL* in smooth muscle spasm parallel the findings in experimental studies.

Irrespective of the therapy employed in gastrointestinal or biliary disease, Profenil is suggested as a routine measure for the control of the associated spasm.

Tablets for oral use contain 0 06 Gm of Profenil citrate.

Ampoules for parenteral use contain 0 045 Gm. of Profemi hydrochloride.

Suppositories for rectal use contain 0.048 Gm and 0 024 Gm. of the base (Adult and Child).

*The Review of Gastroenterology. Vol. 12, Number 6, pages 436-439, Nov.-Dec. 1945.



(bis gamma - phenyl - propylethylamine)



TORONTO

MONTREAL

The Canadian Medical Association Journal

INDEX TO ADVERTISERS

In this Issue

PAGE	PAGE
Abbott Laboratories , xxxi, xxxii	Lavoris Chemical Co
'Allen & Hanbury Co vi	Lederle Labs xxv, lxiii
American Can Co	Lewis & Co., H. K xxxv
American Cystoseope Makers Inc lxxxvii	Libby, McNeill & Libby lxi
Amido Laboratoriesliv	Lippineott, J. B Front cover
Angier Chemical Colxxx	Macmillan & Co xxxiii
Anglo-Canadian Drug Co lxx	•
Anglo-French Drug Co i	•
Atlantic Cod Liver Oil lxxxix	
Ayerst, McKenna & Harrison 123, xli, xlii	
Babee-Tenda Corp	1
Bank of Montreal	1
Bard-Parker Co xxiv	
Barnes Co., A. C	
Bauer & Black	
Baybank Pharmaceutical Co	2 10201 22 2007 01
Beauty Counselors	
Bilhuber-Knoll Corp	110000
Bishop & Co., J xxiii	Kongici vicico
British Drug Houses xliv	13,5.1.0.1
British Felsol Co Inside back cover	Concerned armos
British Medical Association	School Corp
Burroughs Wellcome xiv	Ochoor of 119 giche
Camp & Co, S. H	Chair a zemie
Can. Medical Protective ixvii	Diditariores co , so c
Can. Tampax Corp Iv	Omio, tome a renew
Ciba Co xxvii	Dillos et archites
Classified Ads. TYXIV, XXX	Opener do de
Clay-Adams Co lxxvii	i Squibb & Sons, E R Ixxxiv, Ixxxi
Connaught Labs 12	Starkman Chemists lixxii
Cow & Gate ulvi	(10011111111111111111111111111111111111
Denver Chemical Co	1 Stevens & Son, J
Deshergers-Bismol Labs ht. I	Care and the management of the control of the contr
Du Pont-Patterson Screen hvo	Sylvino Publications xxxxi
Durum Cereals lww	Synthetic Drug Co
Eddé Ltd. J. Ivvi	Tailby Nason Co lxn
Eli Lilly Co Inside front cove	
Evre & Spottiswoode NM	
Fellowship of Medicine	
Financial Collection Agency has	
Frost & Co, C E . SN 17	n Cpjonn co
Gallia Labs Iver	n Victor 12-May Co. p
Gowlland Ltd Ivy	1 Wampole & Co Ltd , H K
Hanger Limb Ltd hasi	n Warner Co, Wm R lxxiv
Heinz Co, H J	Washington Inst. of Med - x
	n White Labs xvi, xvi
Homewood San xxxvi	
	v Wingate Chemical Co lxxi
Iodine Educational Bureau Ixx	
	e Wood San xxxvi
Lakeside Export Corp	ii Wyeth & Bro ix, x, Ixxvi, Ixxx

sipperciant frommunta

specific job

PROTHRICIN' Antibiotic Nasal Decongestant combines tyrothricin (0.02%) with 'Propadrine' hydrochloride (1.5%) for the specific purpose of re-establishing normal drainage and combatting bacterial-infection in the local treatment of sinusitis, rhinitis, coryza and nasal congestion.

Tyrothricin has a number of advantages over penicillin and the sulfonamides as a local antibiotic. The antibacterial range of tyrothricin is essentially the same as that of the sulfonamides, but tyrothricin when applied locally does not produce toxic effects, sensitize the patient, or produce a precipitate on the ciliated mucosa which may block drainage and impair normal function.

Applied locally, tyrothricin promptly attacks bacteria, and its low surface tension promotes penetration of tissue crevices and mucosal folds. Penicillin, unlike tyrothricin, is rapidly absorbed and removed from the site of application.

In addition to the antibacterial action of tyrothricin, 'PROTHRICIN' decongestant contributes to normal drainage and re-establishment of mucosal function by means of 'Propadrine' hydrochloride, an effective vasoconstrictor notably free from the unpleasant side-effects of ephedrine and its analogs.

'PROTHRICIN' Antibiotic Nasal Decongestant is supplied in r-ounce, dropper-assembly bottles bearing no expiration date, for this solution is stable, and indefinitely retains full antibacterial-vasoconstrictor potency at ordinary room temperature.

Sharp & Dohme (Canada), Ltd., Toronto 5, Ontario





antibiotic nasal decongestant

ANNUAL MEETING Canadian Medical Association June 23 to 28, 1947 Winnipeg, Manitoba

The Canadian

ssociation Journal

Vol. 56

FEBRUARY, 1947

No. 2

Contents						
	Page		Page			
	BIOCHEMISTRY IN MEDICINE.	MULTIPLE MALIGNANCY CURED BY				
	D. L. Thomson	SURGERY.				
4	SURGERY OF THE STOMACH.	L. H. McKim	207			
	L. R. Dragstedt	MIXED PAROTID TUMOUR.				
4	QUININE AND ATABRINE IN GASTRIC	B. E. Sherk	208			
	SECRETION.	MASSIVE PULMONARY EMBOLUS.	•			
	B. P. Babkin and D. Karp	A. K. M. Magee and R. K. Magee.	210			
1	HAY FEVER PLANTS IN MANITOBA.	SPECIAL ARTICLE				
•		MODERN MEDICINE IN CUINI				
r	C. H. A. Walton and M. G. Dudley 142	A. S. Allen,	~**			
Ľ	ARA-ŒSOPHAGEAL HIATUS HERNIA.		211			
	K. R. Trueman	EDITORIALS .				
1	SYCHIATRIC OBJECTIVES.	THE SCHEMM DIET IN THE TREATMENT				
	R. R. Grinker	OF ŒDEMA SOIXANTE-QUINZIÈME ANNIVERSAIRE DE	214			
•	ANTIHISTAMINE DRUGS.	L'UNION MÉDICALE DU CANADA.				
	C. H. A. Walton and J. A. Kristjansson-					
	MacDonell	RESEARCH HEALTH WEEK IN 1947 STREPTOMYCIN	***			
	CADRICAN SECTION.	HEALTH WEEK IN 1947	215			
	A. W. Andison	STREPTOMYCIN	215			
	BARCAHUUSIS.	MARKET OWN	215			
	A. Anglin	LLINICAL AND LARABATARY LIAMES				
	APPEAR A PARACTURE OF SHARK HISTORY	I CLENCY OF DICHTALIC WILLOUP VALUE				
	A. W. Proetz	UCTS SOLD ON THE CANADIAN MARKET,				
	MADIATION THEMSET OF PRIN HIGERGE					
	J. Sommers	M. G. Allmark and A. Lavallée	215			
	WILLER LINEY MURCUPY AND AND THE CONTROL OF THE CON		210			
	L. B. Pett and F. W. Hanley	Men and Books Association Nates	218			
		The Committee	221			
	C. M. Spooner	Medical Societies Miscellany	223			
	PENTOTHAL ANASTHESIA.		224			
	G. A. F. Wainwright 198					
	CASE REPORTS					
	PLASTIC REPAIR IN AN ELECTRICAL BURN.	Canadian Medical War Services Abstracts from Current Literature Obituaries	230			
	H. Baxter and A. Elvidge	Obituaries.	231			
í	VITAMIN D2 IN LUPUS VULGARIS.		236			
	E. Gaumond and J. Grandbois 20	Book Reviews Index to Advertisements	238			
			244			

Published Monthly by THE CANADIAN MEDICAL ASSOCIATION, 3640 University Street, Montreal [PRICE SEVENTY-FIVE CENTS PER COPY] CE SEVENTY-FIVE OLIVIO . INIGHTE Printed in Canada by MURRAY PRINTING COMPANY, LIMITED, 192 SPADINA AVENUE, TORONTO 2.B. [COPYRIGHTED]

Spalteholtz HAND-ATLAS of HUMAN

Long acclaimed for its accuracy, clarity and practical usefullness.

By Werner Spalteholtz, Professor of Anatomy in the University and Custodian of the Anatomical Museum at Leipzig; Edited and Translated by Lewellys F. Barker, M.D.

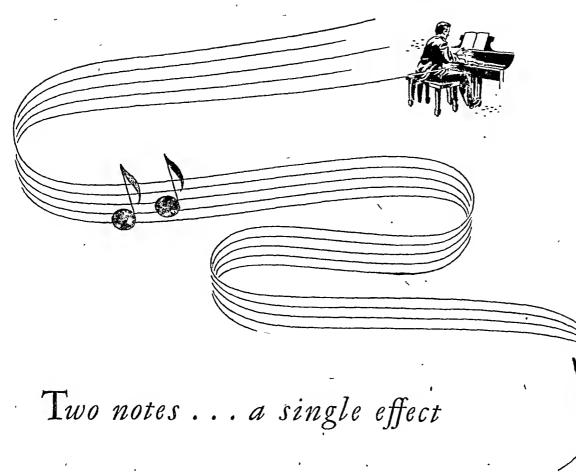
The one-volume edition of this book is complete in every respect-with the same excellent illustrations used in the three-volume edition, reproduced by offset lithography. A comprehensive text accompanies each plate. Includes: Structure of Bones, Placental Circulation, Arteries, Veins, Disestive Tube, Abdominal Organs, Respiratory System, Urinary System, Reproductive System,

902 PAGES

994 ILLUSTRATIONS

J. B. LIPPINCOTT COMPANY, Medical Arts Building, MONTREAL

LIPPINCOTT SELECTED PROFESSIONA



The blended tonal effect of a piano chord is dependent upon more than one note. Likewise, a combination of barbiturates can produce a result which cannot be duplicated by a single orally administered barbiturate. With Pulvules Tuinal, a rapid yet prolonged sedative or hypnotic action can be produced. To accomplish this, *rapid* short-acting 'Seconal Sodium' is combined with slower *longer*-acting 'Sodium Amytal.' Pulvules Tuinal act promptly and allow the patient a full night's rest, undisturbed by an early awakening.

Available as:

Pulvules Tuinal, 1½ grs. (0.1 Gm.) (No. 303)

and

Pulvules Tuinal, 3 grs. (0.2 Gm.) (No. 304)

Pulvules Tuinal

PULVULES TUINAL—A Combination of 'Seconal Sodium' (Sodium Propylmethyl-carbinyl Allyl Barbiturate, Lilly) and 'Sodium Amytal' (Sodium Iso-amyl Ethyl Barbiturate, Lilly) in Equal Parts



SYNERGISTIC ACTION

TUST as each link in a chain serves to unite the strength of the whole, so the ingredients in Hypotensyl combine synergistically to augment its value as a hypotensive.

The active ingredients in Hypatensyl are Viscum Album (Eurapean mistletae), liver extract and insulin-free pancreatic substance. Many physicians prefer use of this cambinatian to depressing drugs.

Its **triple** action gives full clinical satisfaction in mast cases of vascular hypertension.

First, blaad-pressure is reduced 20-30 mm. Hg. beginning in about twelve hours. Second, vasodilatation can be sustained indefinitely by continued medication

Third, associated headache and dizziness are effectively relieved in 75% cases

Indicated in essential hypertension, benign hyperpiesia, fibratic kidney and hypertension accompanying pregnancy

The average dosage is 1 to 2 tablets three times daily, one-half hour before meals. Supplied in bottles of 50 and 500 tablets.

Literature and Sample upon request.

HYPOTENSYL

FOR SUSTAINED RELIEF OF HIGH BLOOD PRESSURE

ANGLO-FRENCH DRUG CO. LTD.

209 ST. CATHERINE STREET EAST

MONTREAL, P.Q.



Where a deficiency of Vitamin B exists oral therapy with B-SAN COMPLEX is indicated

B-SAN COMPLEX WITH IRON

C.T. Tablets

each containing:

3.5 mgs. Vitamin B₁ (Thiamin) " B₂ (Riboflavin) 0.66 "

" Nicotinic Acid 10.0 " Vitamin B. 0.2

" Pantothenic Acid

2 grains Ferrous Sulphate

B-SAN COMPLEX and IRON WITH PHENOBARBITONE

Coated Tablets

each containing:

3.5 mgs. Vitamin B₁ (Thiamin) 0.66 " B₂ (Riboflavin)

" Nicotinic Acid 10.0

" Vitamin Bs 0.2

" Pantothenic Acid 0.6

3 grains Ferrous Sulphate
1/3 "Phenobarbitone

SYNTHETIC DRUG COMPANY LIMITED

243 College St., Toronto

Phone MIdway 8055

ABSTRACTS OF WORLD MEDICINE

Published monthly £3.3.0 p.a.

ABSTRACTS OF WORLD SURGERY OBSTETRICS AND GYNAECOLOGY

Published monthly £2.2.0 p.a.

READY JANUARY 1st, 1947

Published by the B.M.A. and conducted under the general direction of The Editor of the British Medical Journal.

Subscriptions to Publishing Manager

British Medical Association, B.M.A. House

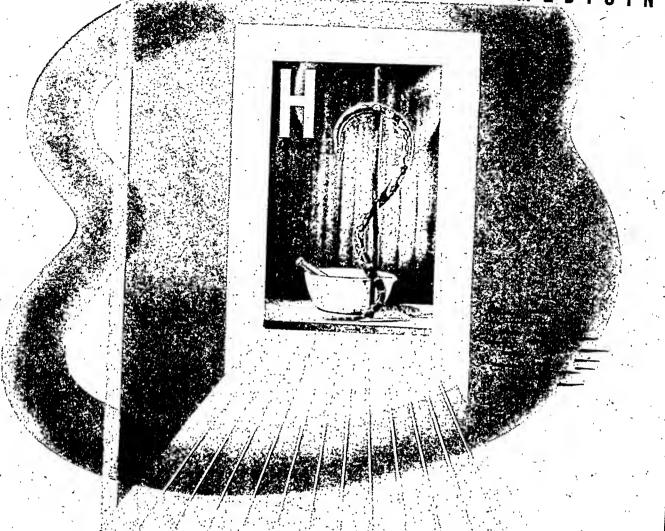
Tavistock Square, London, W.C.1



Pastilles GONACRINE

A powerful and yet nonirritating antiseptic dye compound, for convenient application to the mouth and pharynx. Its action is prolonged and slightly analysis.

SCIENCE AT THE SERVICE OF MEDICINE

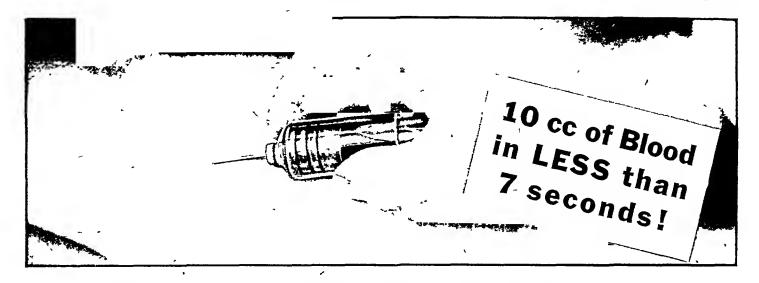




Clinical experiences have demonstrated that the administration of xanthines may double coronary circulation and allow a greater amount of work to be performed.



ROUGIER FRÈRES, 350 Le Moyne Street, MONTREAL (1)



Gain these SIX Advantages with The B-D VACUTAINER*

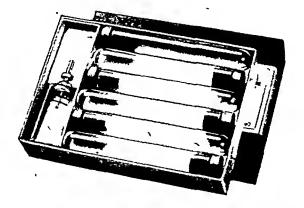
- 1 NO BLOOD TRANSFER NECESSARY Blood is drawn from vein through needle into Vacutainer where it remains for centrifuging and tests without need of transfer, also eliminating danger of outside contamination.
- **ADAPTABILITY** B-D Vacutainer tubes are available in a variety of sizes to fit most standard tests. They are supplied with or without anti-coagulant.
- **3 HIGH QUALITY OF BLOOD** Delivers the quality and quantity of blood to the laboratories that they have always wanted but have not always received.

- 4 SPEED 10cc of Blood in less than 7 seconds under normal conditions. Speed of Vacutainer may permit one technician to do the work of two using other methods.
- **6** LOW COST Original cost of equipment compares favorably with any other method. B-D Vacutainer saves cost of syringe, tube, cork, washing, scouring, sterilization, and other preparations for use. Less handling means less danger of breakage.
- **6 CLEANLINESS** Closed container eliminates contamination or possible spillage. Excess vacuum, after sufficient quantity of blood is taken into tube, automatically sucks residual blood from needle cannula into Vacutainer.

*A New Vacuum Tube device for collecting blood samples.
Write for folder showing Vacutainer in use.

Ask your dealer for the B-D Vacutainer Physician's outfit (#3201) containing 1 dozen tubes, a holder and an adapter for use with your own selection of needle.

No. 3201 Outfit



B-D PRODUCTS

chade for the Profession

B-D Products are sold through your local dealer

NORMAN S. WRIGHT & CO., LTD., TORONTO, CANADA

Canadian Sales Representative for

BECTON, DICKINSON & CO.



GLYSENNID

FOR ATONIC CONSTIPATION



ADULTS: 2 to 4 tablets daily

CHILDREN: 1 to 2 tablets daily

Samples and literature on request



PHARMACEUTICAL DEPARTMENT

THE WINGATE CHEMICAL COMPANY LTD.

MONTREAL

STREPTOMYCIN

For Rapid Control of Gram-Negative Infections

ACTION

- Bocteriostotic and bactericidol effect ogoinst o wide ronge of grom-negotive organisms.
- Should be administered in full dosage to bring infection under control rapidly.
- Moy be given in conjunction with other chemotheropy.
- Effectiveness in urinory troct infections increosed by olkolizing the urine.

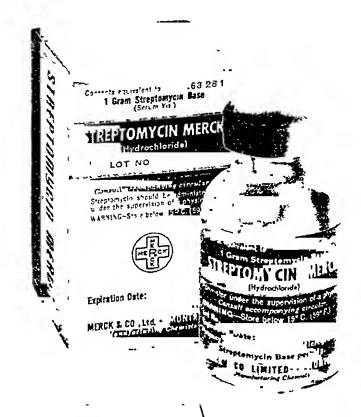
DOSAGE

- For systemic effect, 0.2 Gm. to 0.5 Gm. every four hours, intramusculorly.
- To diminish bocterial content of gastrointestinol tract, 0.2 Gm. to 0.5 Gm. every four hours orolly.
- For topical use, 0.05 Gm. per 100 cc. water or saline (for optimum effectiveness should be buffered to pH 7.5 to 8.5).

INDICATIONS

For short-term use (average 2 to 14 days):

- Urinory troct infections due to gramnegotive organisms.
- Infections due to susceptible stroins of Escherichia coli, Proteus vulgaris, Aerobacter aerogenes, Salmonella.
- Preoperatively and postoperatively in abdominal operations.
- Surgicol wounds infected with gromnegotive organisms.



- Klebsiella pneumo de (Friëdlander's bacillus) infections.
- Hemophilus influenzae infections.
- Tuloremio.

For long-term use (1 to 6 months):

- Tuberculosis, in selected coses.
- Bocteremio and endocarditis due to streptomycin sensitive organisms.

Complete directions for use ore enclosed in each carton of Streptomycin Merck

STREPTOMYCIN MERCK

(HYDROCHLORIDE)

MADE IN CANADA

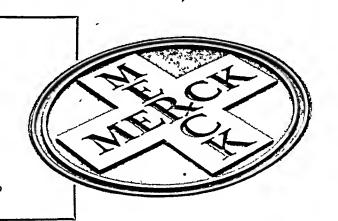
MERCK & CO. LIMITED

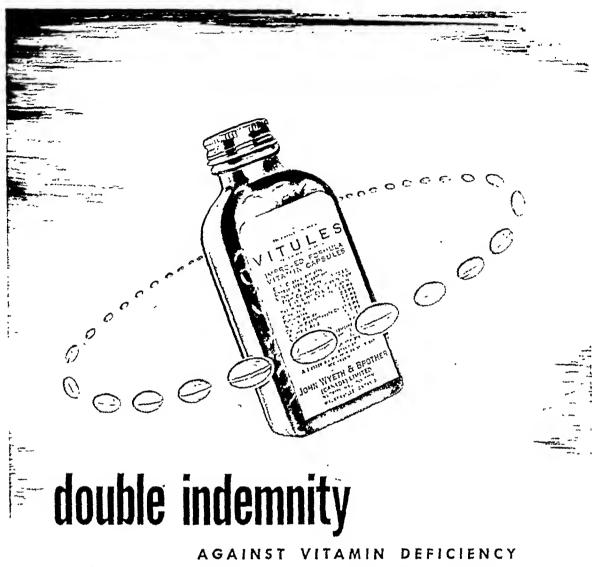
Manufacturing Chemists

MONTREAL

TORONTO

VALLEYFIELD





AGAINST VITAMIN DEFICIENCY



A MULTIVITAMIN CAPSULE CONTAINING CAROTENE (PROVITAMIN A)

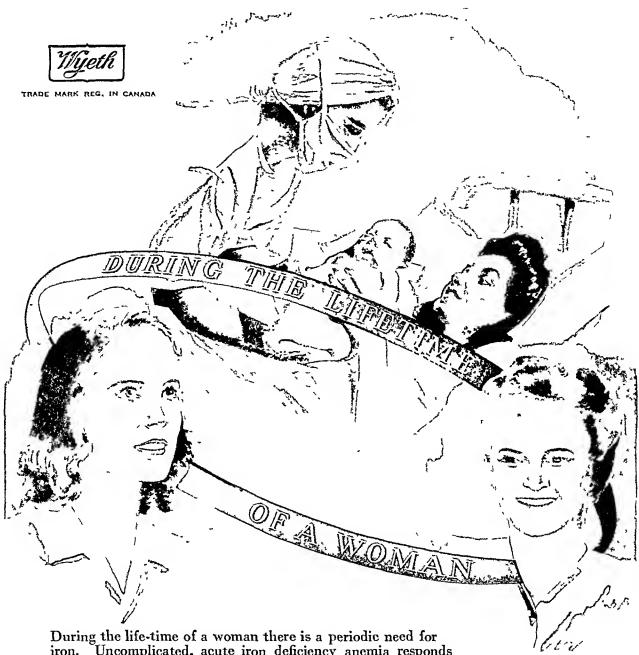
POTENCY PROTECTED, both carotene and vitamin A in Vitules are protected and stabilized by mixed tocopherols which assures your patient the indicated dosage of vitamin A. Vitules also supply adequate amounts of the other vitamins recognized as essential for human nutrition.

Check vitam. the formula

Supplied: Battles of 30 and 100

psule cortains:			
Vitamin A Activity*	5000 I.U. 1	Ascorbic Acid	30.0 mg. 🐪
Thiamine Hydrochloride	1.0 mg. \	Vitamin D	. 500 LU. N
Riboflavin.	2.0 mg. \	Mixed Tocopherols	3.0 mg. N
Pyridoxine	1.0 mg. \	Liver Concentrate (derived from	
Niacinamide.	10.0 mg. \	2.5 gm. whole liver)	125.0 mg. \
Calcium Pantothenate	10.0 mg. \	Brewers' Yeast	.125.0 mg. \

*1000 units from carctene; 4000 units from Lish liver ods.



Uncomplicated, acute iron deficiency anemia responds dramatically to treatment with Hematinic Plastules Plain. When the anemia is chronic or of nutritional origin, many clinicians find it advisable to combine liver and iron therapy. 1-2

1. WHIPPLE, G. H., F.S. ROBSCHEIT-ROBBINS and G.B. WALDEN, Blood regeneration in severe anemia \$\lambda \text{I.} A liver fraction potent in anemia due to hemorrhage, Am. J. Med. Sc. 179 628-643 (May) 1930.

2. MOORE, C. V., Iron and the essential trace elementa in Wohl, M.G. Dietatherapy, Philadelphia and London, W. B. Saunders Co., 1945 pp. 98-107.

Vastules ematinic

PLAIN

Trade Mark Reg. in Canada WITH LIVER

BOTTLES OF 75

DOSE: One Plastule three times daily

Prescribe 75 to ensure at least 25 days medication

BOTTLES OF 50 and 150

DOSE: Two Plastules three times daily Prescribe 150 to ensure at least 25 days medication



Simpler, safer and more efficient procedures in parenteral therapy were pioneered by Baxter.

Since Baxter solutions were introduced, Baxter has specialized in one field—the development and production of parenteral products that make for a trouble-free program for your hospital. No other method is used in so many hospitals.

Manufactured by

BAXTER LABORATORIES
Glenview, Illinois Acton, Onterio

Freduced and distributed in the eleven Western states by CON RAXTER, Inc., Glendele, Colifornia

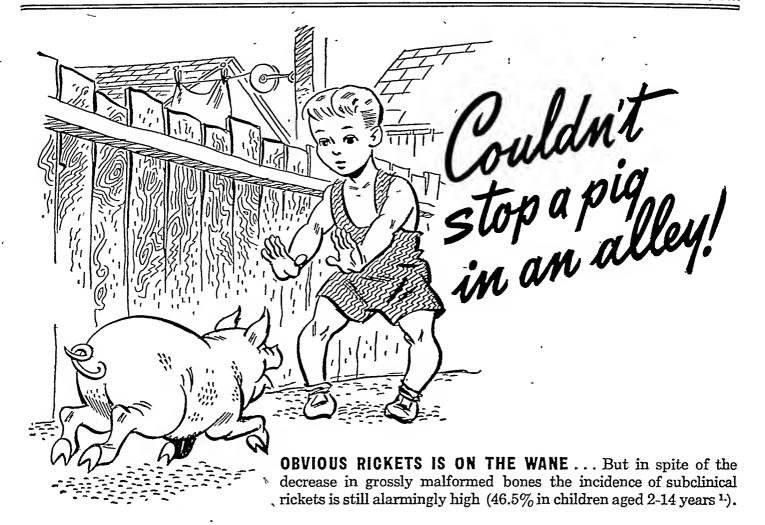
Distributed in Canada exclusively by

Ingram & Biell

LIMITEL'

MONTREAL . WINNIPEG . CALGARY . VANCOUVER





DENTAL CARIES IS NOT ON THE WANE...
But the significance of fluorine in relation to dental health has become well established and the prospect looks bright for the coming generation.

FLUORINE... Orical E.B.S. contains 1/80 grain of Fluorine in each tablet.

PALATABLE... Orical E.B.S. has taste appeal for youngsters.

Contents of Orical Tablets . .

5 gr. BONE MEAL Calcium ... 25%.
Fluorine . 0.25%
Phosphorus 11%
VITAMIN D 400 Int. Units

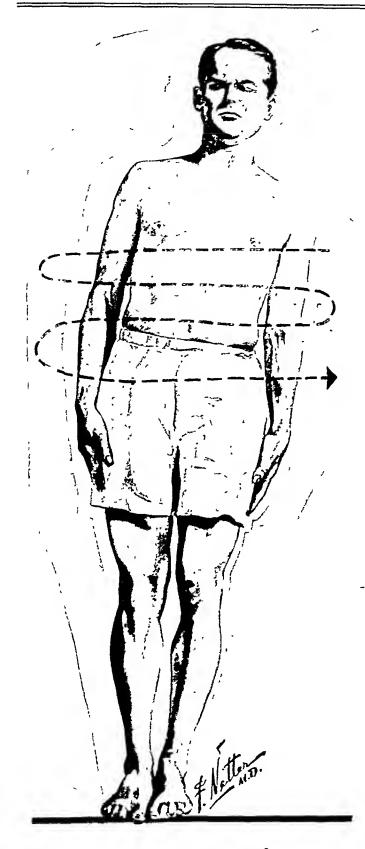
THE E.B. SHUTTLEWORTH CHEMICAL CO., LTD.
525 LOGAN AVENUE, TORONTO 6

A wholly Canadian Company
ESTABLISHED 1879

ORICAL E.B.S. IS RICH IN CALCIUM, PHOSPHORUS AND VITAMIN D, ALL NECESSARY FOR ADEQUATE BONE NUTRITION

Please note: We have discontinued selling this preparation under the name "Calfos" in view of possible confusion with a trademark used by another manufacturer. There has, however, been no change in the character or quality of our preparation now offered under the name "C.T No. 175 Orical E.B.S."





POSITIVE ROMBERG

A positive Romberg test (Brauch-Romberg symptom) is one of the more characteristic evidences of cord involvement in pernicious anemia. Because of impaired position sense, the patient sways from side to side when he stands with feet together and eyes closed.

Early. adequate and persistent therapy is essential for the prevention or control of spinal cord affection in pernicious anemia. This is most important since neural involvement may cripple or incapacitate the patient. The quality of the liver preparation employed thus becomes of utmost significance. In the production of ARMOUR LIVER PREPARATIONS every precaution is taken to assure therapeutic efficacy. The ARMOUR LABORATORIES has available the world's largest supply of fresh raw animal material. Skill and care are exercised to preserve the active blood regenerating constituents of the fresh liver—the hemopoietic principle as well as secondary factors. The finished products are tested for potency on actual pernicious anemia patients in relapse.

Have confidence in the preparation you prescribe—specify "ARMOUR"



Liver Liquid Parenteral

4 U. S. P. Injectable Units per cc. (Crude), 1 cc., 5 cc., and 10 cc. rubber-capped vials. A preparation retaining the secondary hemopoietic factors and most of the vitamin content of the liver.

10 U. S. P. Injectable Units per cc. 1 cc., 5 cc. and 10 cc. rubber-capped vials.

15 U. S. P. Injectable Units per cc. 1 cc., 5 cc., and 10 cc. rubber-capped vials. A highly refined and concentrated preparation for massive do-age.

Solution Liver Extract - Oral

15 cc. equal 1 U. S. P. Oral Unit. A readily assimilable and therapeutically effective preparation for use when the oral route is indicated or preferred.

Liver Extract Concentrate - Capsules

9 capsules equal 1 U. S. P. Oral Unit, Odorless and tasteless, Sealed gelatin capsules in boxes of 59 and 100.

THE AMOUT LABORATORIES

Division, Armour and Company, Wentworth Street North, Hamilton, Ontario, Canada

NO.8 in Schenley Laboratories' continuing summary of penicillin therapy.

PENICILLIN SCHENLEY: its value in the BACTERIAL COMPLICATIONS of ATYPICAL PNEUMONIA

Although it is ineffective in combating the primary infection of atypical pneumonia, penicillin has demonstrated its value in the prevention and management of complications due to penicillin-sensitive organisms. Atypical pneumonia may occasionally be complicated by bronchiectasis, empyema, ulcerative lesions of the tracheobronchial tree, or other sequelae; these have shown satisfactory response to penicillin therapy. 1,12 For optimum benefit in the control of secondary infection:

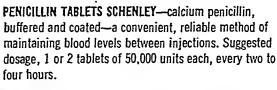


give enough-soon enough-long enough

¹ Short, J. J.: U. S. Nav. M. Bull. 43: 974 (Nov.) 1944; ² Kay, E. B.: Arch. Int. Med. 76: 93 (Aug.) 1945.



PENICILLIN SCHENLEY (sodium salt). Suggested dosage, 20,000 to 40,000 units of penicillin solution, intramuscularly, followed by 25,000 units every three or four hours.





Specialized skills devoted to the control of bioculture processes insure the dependability of all penicillin products bearing our label.

SCHENLEY LABORATORIES, INC.

EXECUTIVE OFFICES: 350 FIFTH AVENUE-NEW YORK CITY

Schenley Laboratories, Inc.



Distributed in Canada exclusively by

INGIRAMI& BIEILIL

HONTREAL - WINNIPEG - CALGARY - VANCOUVER



PHYSICIANS the world over rely on this easily tolerated, outstandingly palatable tonic to restore appetite, vigor and general tone...

ESKAY'S THERANATES—outstandingly palatable, light and easily tolerated—is the ideal tonic to restore appetite, increase intake of necessary nutritional factors, and thus speed the convalescent to full recovery.

Eskay's Theranates

the formula of Eskay's famous

Neuro Phosphates

plus appetite-restoring Vitamin B₁

Smith, Kline & French Inter-American Corporation • Philadelphia-Montreal Carodon Damboton The Learning Mies Co., Ind., Montreal

CThe sulfonamide drugs given orally are recognized as the most valuable single therapeutic measure

in severe infectious sore throats."

Weille, F. L.: M. Clin. North America 28:1115.

Eskadiazine...

S.K.F.'s fluid sulfadiazine for oral use . . . is particularly indicated for patients with painfully inflamed throats because:



Eskadiazine is so much easier to swallow than bulky half-gram sulfadiazine tablets.



Eskadiazine is so outstandingly palatable that even infants and children actually like to take it.



Eskadiazine is so quickly absorbed that it provides desired serum levels 3 to 5 times more rapidly than tablets.

Smith, Kline & French Inter-American Corporation Philadelphia and Montreal

Canadian Distributors: The Leeming Miles Co., Ltd., Montreal



for the Treatment of RECENT AND CHRONIC COLDS ACUTE AND CHRONIC BRONCHITIS AND LIKE AFFECTIONS OF THE RESPIRATORY TRACTS

Available in 16 fl az battles, 1/2 (mp gal battles, Imp gal jugs

Results have proved this preparation to be an effective combination for the treatment of recent and chronic colds, acute and chronic bronchitis, and like affections of the respiratory tracts. Pinocodeine does not spoil the appetite, upset the stomach or cause constipation.

Each fluid ounce represents.

Pinus Strobus	32 gr.
Prunus Virginiana	32 gr.
Sanguinoria Canadensis	
Populus Balsamifera	
Chlorofarmum	1 min.
Codeinge Phosphas	1 ar.

DOSAGE: One to two teaspoonfuls.

This preparation readily lends itself to the following modification as indications demand:

EARLY BRONCHITIS	Potassium Citrote
BRONCHITIS R	Ammonium Chloride
TO ABORT A COLD	Atropine Sulphate



The "Acetophen" Compound formula is an outstanding example of synergistically acting drugs. "Acetophen", ("Toost" brand of Acetylsalicylic Acid) when combined with Phenacetin, increases the effectiveness of both. The value of Caffeine in the formula is twofold. In combination with "Acetophen" and Phenacetin, it appears to increase their analgesic action and, in addition, acts as a circulatory stimulant and diuretic, thus helping kidney elimination so desirable in the presence of any infection.

Codeine phosphate which, when taken alone, is not a powerful nerve sedative, proves most effective in association with "Acetophen", Phenacetin and Caffeine citrate. These drugs, when combined, act synergistically to attack the exciting cause of pain—the infecting organism—and are analgesic because of the decongestive action on brain and muscle.

"Tablet No. 222" (White)

"ACETOPHEN" COMPOUND with CODEINE

C. T. No. 262, Figur

The same formula as Tablet No. 222, Coloured Pink

C. T. No. 282, Finish (Yellow)

"ACETOPHEN" COMPOUND with CODEINE R2

C. T. No. 292, "Figust" (Pink)

"ACETOPHEN" COMPOUND with CODEINE R3

 Acetophen
 3½ gr. (0.22 G.)

 Phenocetin
 2½ gr. (0.16 G.)

 Caffeine citrate
 ½ gr. (32 mg.)

 Codeine phosphote
 ½ gr. (32 mg.)

DOSAGE: One tablet with water, two or three times doily.

C. T. No. 273, Final (Pink)

"ACETOPHEN" COMPOUND with CODEINE Ite
FOR CHILDREN

Acetophen . % gr. (56 mg.)
Phenacetin . % gr. (40 mg.)
Caffeine citrate. % gr. (8 mg.)
Codeine phosphate. 1 32 gr. (2 mg.)

DOSAGE: One to three toblets as directed

INFLUENZA
COMMON COLD
LUMBAGO
SCIATICA

ACUTE RHEUMATIC

FEVER

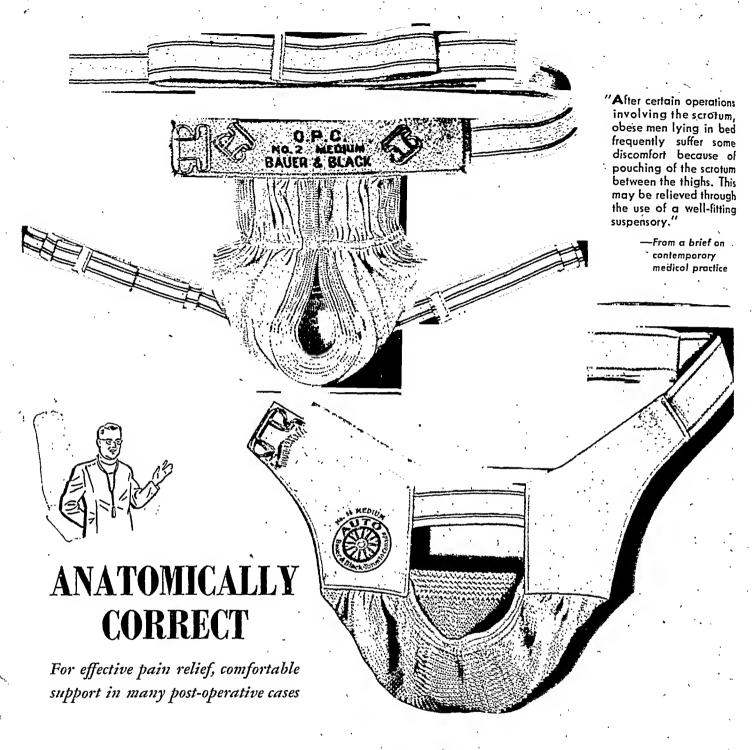
HEADACHE

.....

PAIN OF ARTHRITIS

DYSMENORRHOEA

PAIN FOLLOWING
TRAUMA OR
OPERATIVE PROCEDURES



FOR OVER FIFTY YEARS anatomically correct Bauer & Black Suspensories have been standard practice in the care of many post-operative cases, as well as in the treatment of varicocele, epididymitis, orchitis, and scrotal injuries. The popular O. P. C. No. 2 (double

strap) and Auto (single strap) models have long been the choice of doctors and patients alike. Available in all sizes at leading druggists and surgical supply dealers.

BAUER & BLACK

TORONTO

ONTARIO

O.P.C. & AUTO



SINGER SEWING MACHINE COMPANY
Surgical Stitching Instrument Division.
Canada
CM-27
254 Yonge St., Toronto - 424 Portage
Ave., Winnipeg - 700 St. Catherine St.,
Montreal
Without obligation ple is send copy of
illustrated booklet
Name

•

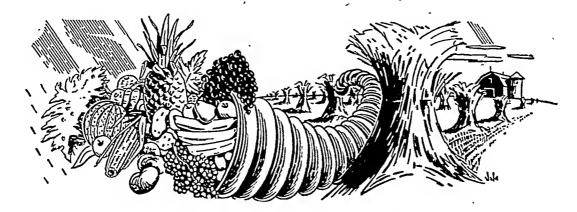
SURGICAL STITCHING INSTRUMENT

Dramatically interesting color motion pictures available for meeting use

Canad. M. A. J

Feb. 1947. vol. 34

EVEN IN THIS LAND OF PLENTY...



THERE IS URGENT NEED FOR PROFESSIONAL GUIDANCE IN NUTRITION

DIETARY SUPPLEMENT

One capsule and one tablet constitute a single dose.

VITAMINS

each capsule contains

Vitamin A......1,500 int. units Pro-vitamin A (Beta-carotene).. 1,500 int. units Vitamin D...... 600 int. units Thiamine Hydrochloride (Vitamin B1)..... 1.2 mgm. Riboflavin (Vitamin B₁)..... 1.0 mgm. Nicotinamide 10.0 mgm. Ascorbic Acid (Vitamin C) 25.0 mgm.

MINERALS each tablet contains

Ferrous Sulphate Exsiccated B.P.. ... 2.0 grains Calcium Phosphate B.P..... 2.0 grains To preserve the thiamine hydrochloride from the known destruc-tive action of iron salts, Dietary Supplement B.D.H. is presented in two parts—the vitamins in capsules and the minerals in tablets.

B.D.H.

Despite the wide range of 'protective' foods available, dietary fads, unwise self-selection, hastily prepared and irregular meals adversely affect the nutritional status of all age groups.

When the daily diet for any variety of reasons fails to furnish the correct nutrients, the administration of Dietary Supplement B.D.H. will provide appropriate levels and proportions of those minerals and vitamins most frequently lacking in the 'ordinary mixed diet'.

> Issued in cartons containing one bottle of 100 capsules and one bottle of 100 tablets.



THE BRITISH DRUG HOUSES

(CANADA) LIMITED

TORONTO

CANADA

...

Will PRODUCT





a safe, effective tonic . . .

providing adequate amounts of VITAMINS A, B₁ and D - PHOSPHORUS - CALCIUM and MALT EXTRACT

Each fluid ounce contains:

Vitamin A	4,000 U.S P. Units
phite	460 grs.

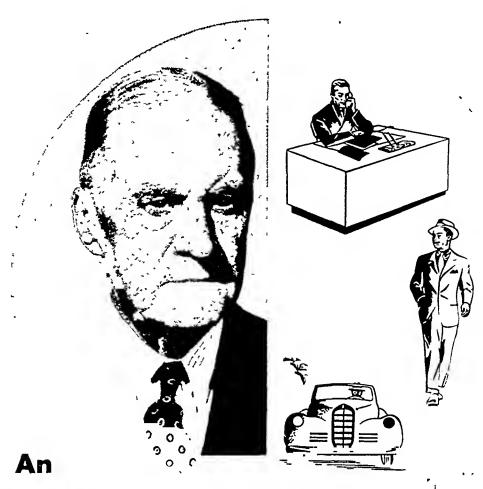


CHARLES R. WILL & COMPANY LIMITED London - - - - - Canada

MAVITYL

MAVITYL is valuable following infections, also in general debility, neuritis, neurasthenia, anorexia and in cases of deficiency due to restricted diet or during convalescence.

* Trade Mark Reg'd.



Approach to Normal Living for the Chronic Cardiac

Physicians know the dramatic results in respiratory failure through the use of Coramine intravenously. Of equal value in ambulatory patients with chronic cardiovascular disease is

CORAMINE LIQUID This form of Coramine is

indicated where drastic action is not required, but where maintenance and progressive improvement are sought. Taken orally, Coramine Liquid enables the patient to move about freely and to carry on moderate normal activities with an easy mind—in itself an important factor in management of cardiac conditions.



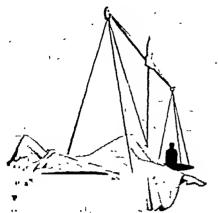
ISSUED:

Liquid, for oral use—bottles at 15, 45 and 100 c.c.

Far intravenous or intramusculor use, ampoules of 1.5 c.c.—
cartons of 5,20 and 100
5 c.c.—cartons of 3 and 12



CIBA COMPANY LIMITED • MONTREAL



When a Life Hangs in the Balance . . .

...and progressive wasting increases the gravity of the prognosis, depletion of body proteins can be prevented. Parenamine -parenteral source of the indispensable and other amino acidsprovides the elements of protein nutrition ... sustains the regenerative processes essential to recovery.

Parenamine

Amino Acids Stearns

PARENTERAL

For Protein Deficiency

PARENAMINE is a sterile 15 per cent solution of amino acids containing allknown to be essential for humans, derived by acid hydrolysis from casein and fortified with pure dl-tryptophane.

INDICATED in conditions of restricted intake, faulty absorption, increased need or excessive loss of proteins such



as in pre- and postoperative management, extensive burns, delayed healing, gastro-intestinal duorders, et cetera.

ADMINISTRATION may be intravenous, intrasternal or subcutaneous.

surruro as 15 per cent sterile solution in 100 cc. rubber-capped bottlet.

Reprints and complete clinical data will gladly be sent on request.

Frederick Stearn St. Company of Canada, Ltd.

ARCE VINE

EASTAS COTT

BAS FRANCISCO

DETROIT

SYDYZY, AUSTRALIA

ADDELAND, STIVE ZEALAND

5-270

Paremathe TrainMark Keel







A N

14

Z

 \Box

S

S

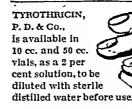
• Man's longing for a simple, topical cure for disease, symbolized in the King's Touch, now approaches reality with the development of TYROTHRICIN and topical antibiotic therapy. Many gram-positive microorganisms now yield to the bactericidal potency of TYROTHRICIN in infected wounds, various types of ulcers, abscesses, osteomyelitis, and certain infections of eye, nasal sinus and pleural cavity.

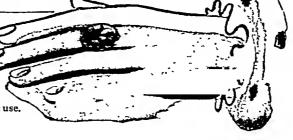
Whenever streptococci, staphylococci and pneumococci are present and directly accessible, TYROTHRICIN may be called upon for purely topical therapeusis by irrigation,

instillation and wet packs.

TYROTHRICIN, P. D. & Co., is one of a long line of Parke-Davis preparations whose service to the profession created a dependable symbol of significance in medical therapeutics—MEDICAMENTA VERA.







PARKE, DAVIS & COMPANY, LTD. . WALKERVILLE, ONTARIO





Preoperative nervousness is multiplied by a sleepless night. Realizing this, many careful surgeons routinely prescribe Nembutal, 11/2 grs., the evening before, in addition to the one or two 11/2-gr. capsules commonly ordered about an hour before surgery. These men know that the patient prepared in this way arrives in the operating room with fear and nervousness largely allayed permitting smoother induction of anesthesia and quieter operating procedure. They know the marked clinical safely of Nembutal, a feature due partly to the brief action of the drug, which permits rapid recovery, and partly to a do-age only about one-half that of most barbiturates. which greatly reduces the amount of drug to be eliminated. Do you and your surgical patients now enjoy these advantages? If not, your prescription or hospital pharmacy will be happy to cooperate in making them available . . . TODAY. ABBOTT LABORATORIES, LIMITED, MONTREAL



CALCIUM, PHOSPHORUS and VITAMIN D



Plus Iron

The role of calcium and phosphorus in pregnancy and lactation is so well known to physicians that it needs no restatement here. Two points, however, may be emphasized. First, calcium and phosphorus adjust themselves in the body interdependently, so that the problem of an adequate calcium supply is also concerned with phosphorus intake. Second, Stearns and Jeans have found that the most favorable ratio for the ingestion of calcium and phosphorus in the body is approximately 1 to 1.

DICAL-D with Iron

Abbott's dietary supplement for pregnant and lactating women supplies both minerals.

The other important factor in calcium phosphorus metabolism is vitamin D, without which the minerals, even when present in adequate amounts, cannot be properly utilized for bone and tooth formation. Dical-D with Iron supplies a sufficient amount of vitamin D in the form of viosterol to meet the entire requirement for this factor during pregnancy and lactation.

But this is not all. Dical-D with iron also aids in protecting the mother against iron deficiency.

Each Dical-D with Iron capsule contains:-

Dicalcium Phosphate . 0.5 Gm. (7.5 grs.) Viosterol (Vitamin D) not less than

333 Int. units

Iron Pyrophosphate, N.F. Soluble 87 mg. (1½ grs.)

Abbott's Dical-D with Iron is available in bottles of 100 and 1,000 capsule.

The Canadian Medical Association Journal

Vol. 56

FEBRUARY, 1947

No. 2

THE APPLICATION OF BIOCHEMISTRY TO MEDICINE*

David L. Thomson, M.A., Ph.D., F.R.S.C.

Professor of Biochemistry and Dean of the Faculty of Graduate Studies and Research,
McGill University, Montreal, Que.

IT is often said that medicine is both a science and an art. If this is to be more than a glib. phrase, if it is to have any real meaning for us, we must be sure what we mean by the words "art" and "science": what do they have in common, and in what do they differ?

Science is a system of ideas and propositions, which has two aspects, the centripetal and the centrifugal; a myriad observations are eoncentrated into a few generalizations, and from these generalizations we proceed outwards again to a myriad applications. How tall is a man? How many petals has a rose? What is the "life" of an atom of uranium? The scientist makes a thousand measurements, perhaps all different, and condenses them into a brief statement, probably in the form of an average. Such results are then combined into general rules, to which there may be many individual exceptions: as, that men are taller than women, or that uranium is more stable than radium. such simple statements we ascend a hierarchy of generalizations and laws that become more and more comprehensive in their scope, until we reach the very limits of the "resolving power" of our language in such words as "life" and "time" and "matter".

Yet all this majestic process would be devoid of practical values, if there were not a parallel process of devolution, if we did not apply this ordered and elassified knowledge to the specific problems of the day or of the year. Without its applications, science would be comparable to the Venetian Republic in its last years: maintaining an elaborate espionage system and docketing masses of information, but too weak to take any action or exert any influence on the course of history.

In Art too, though less obviously, we may detect parallel centripetal and centrifugal aspects. The procedures are different, but the end is the same, since, as Blake said, "Art and seience cannot exist save in minutely organized particulars". What distinguishes Van Gogh's "Bridge at Arles" from an engineer's blueprint, or Vermeer's "View of Delft" from Baedeker's map of the same city? Surely it is that the works of art possess universality; they lose no whit in interest from our never having been to Arles or Delft. These masterpieees impart knowledge to us, knowledge not only of bridges or eities but of the properties of water and sunlight and the whole world, and the knowledge thus assimilated has its "applied" aspect in that it colours all our subsequent approaches. through our senses, to the world; all the more surely and subtly because it is not in verbal form that we possess that kind of knowledge. So, too, the generalizations which we draw and upon which we inevitably act, from reading "War and Peace" or "The Waste Land" are not verbally present to us, though words are the raw material of this form of art. Most intangible and most pervasive of all is music, towards whose condition "all art constantly aspires'—the words are those of Walter Pater.

Art and science then are alike in that both are means whereby an enormous heterogeneity of the world may be condensed into general summations of experience, compact enough to be comprehensible and to be used as a basis of action and prediction. But whereas science proceeds by the humdrum process of compilation and statistics, the artist, by his genius, extracts the essence of his truth from a single exemplar. It is in this sense that medicine is both a science and an art; the diagnostician, for example, is using the methods of science

^{* 1946} Lecture in Medicine, Royal College of Physicians and Surgeons of Canada, Ottawa, November 16, 1946.

when he notes that in his patient the serum calcium and phosphatase are above and the plasma phosphate below normal, and associates these abnormalities with the hyperparathyroidism in which they have so often been observed; but he is using the methods of art when by a stroke of insight he identifies in his patient some elusive resemblance, not to be set down in words, to some unusual case in his previous experience. It seems futile to ask which of these processes is the "better"; yet we may recall that the lightning-flash of insight is no man's constant possession, and to some it never comes at all.

It may be felt that this has been too long and too pretentious a preface to an address which, after all, deals with the applications in medicine of but a single science: biochemistry. Perhaps; and yet it might be suggested in . reply, and in no partisan spirit, that biochemistry is or will be, beyond all other branches of knowledge, the scientific basis of medicine. At present, it is true, there is but a limited number of diseases that are generally conceived of and discussed in almost wholly chemical terms: the endocrine disorders, the vagaries of metabolism, the avitaminoses, some of the blood dyscrasias, and the like. arc many other ailments that are currently discussed in the language of physiology, bacteriology, or immunology; but will it always be so? Given a few years of peace and stability, may we not hope to interpret auricular fibrillation (for example) in terms of derangement of the chemistry of muscle and nerve? Shall we not eventually be able to write an equation for the chemical reaction between exotoxin and tissue constituents that manifests itself as an exanthem? Must there not be some peculiarity, however elusive, in the chemistry of damaged cells that would explain the stresses evident in the brain in Jacksonian epilepsy? To consider such possibilities is not to depreciate the present and future significance of physiology or bacteriology or pathology; it is merely to suggest that as we painfully ascend the hierarchy of generalizations, we shall find that as they become more comprehensive in scope they will tend to become increasingly chemical in terminology.

It is true that the goals indicated are still remote. Our picture of the *normal* chemical activities within the cell is only a half-completed jigsaw-puzzle, and we have only the most frag-

mentary ideas of the derangements of these activities that result from the intervention of a new chemical agent—from the production of a toxin or the exhibition of a drug. Yet progress is being made. There are more than twenty different chemical reactions known to be involved, in sequence, in the conversion of glucose to carbon dioxide and water; and only now, twenty-five years after the discovery of insulin, are we able to point to one of these twenty reactions and say that this one, at least (the reaction of glucose with adenosine-triphosphate to form glucose-6-phosphate, controlled by the enzyme hexokinase), is certainly affected by the available supply of insulin; even here, we do not yet know precisely in what manner it is affected.

In some other cases the focus is sharper, and perhaps three general types may be recoginzed. In the first we divert the cellular enzymes from their true function by supplying them with "imitation" substances with which they combine. but with which they cannot react in the normal manner; the classical case is the inhibition of the oxidase of succinic acid by intervention of the homologous but inert malonic acid, but the "imitation" of para-amino-benzoic acid by sulphanilamide (according to Fildes) is of greater medical interest, and has led to the production of a whole series of synthetic substances (pyrithiamine, pantoyl-taurine, gluco-ascorbic acid, etc.) which can be smuggled into the tissues disguised as the vitamins they closely resemble, but which, once admitted, become saboteurs by refusing to play the parts assigned to them.

In the second type we alter the chemical nature of the enzymes themselves, for example by adding cyanide to cytochrome-oxidase, or di-isopropyl-fluorophosphate to choline-esterase, or less directly by stimulating a muscle to convert phosphorylase- α reversibly into the less active phosphorylase- β and thus perhaps preserving a useful residue of its store of glycogen.

In the third and final type we add a substance which enters into competition with the tissue enzymes, as British Anti-Lewisite (dithiolpropanol) tears arsenic out of their grasp and convoys it safely out of the body.

These instances have seemed to merit discussion, because it is probably along such lines that we shall find explanations of the action of drugs and toxins. From a knowledge of the enzyme systems affected, it may be possible to proceed

to an interpretation not only of physiological but even of morphological changes, such as metaplasia. Terra incognita, indeed, yet even here there are a few seattered observations to point the way: the calcification of rachitic cartilage in vitro, when immersed in normal serum; the keratinization of vaginal mueous cells in vitamin-A deficiency or under the influence of estrogens; the action of the careinogenic hydrocarbons; the production of a typical tubercular tissue-reaction by the injection of a purified fatty acid (phthioic acid, recently doubtfully identified as 3, 13, 19-trimethyl-tricosanoic acid) extracted from tubercle baeilli. The tissueculture technique is at the moment somewhat out of favour; it may not yet have been applied to the problems it is best fitted to resolve.

It would not be unfair criticism to suggest that, thus far, this survey has resembled the hero of Longfellow's "Excelsior": bearing a banner rich with very "strange devices", it has disregarded the present world of human affairs and pressed on starry-eyed towards the high inhospitable glaciers of a future medical philosophy. It may even have given the false impression that the present applications of biochemistry to medicine are undeserving of discussion, and this should be dispelled.

Note, however, that it is a vulgar error to judge'a seience largely by its products: to aeclaim Edison and Luther Burbank as scientists, and to think of science as an absent-minded Santa Claus, dropping down the chimneys of the (sometimes embarrassed) world a profusion of gifts, from nylon to television, from penicillin to the atomic bomh. To think thus is to ignore all the centripetal aspect of science. and all but a few terminal twigs of its centri-Medicine is, of course, too fugal aspect. eonseious of its background to fall into such errors: yet it must be acknowledged that many a clinician, save when the hustle of activity allows a rare pause for reflection, thinks of hiochemistry chiefly as a collection of analytical procedures whose results he has found useful in diagnosis. The biochemist is, naturally, glad to be of use; it is not true of him, nor of any other scientist, that he is indifferent to human welfare, nor that he would

Atoms or systems into ruin hurled.

And now a bubble burst, and now a world.

Nevertheless the professional biochemist may view the hustling activity of the hospital laboratory with something akin to dismay; not merely because it is a very incomplete representation of his science, but also and especially because it makes pragmatic use of determinations whose interpretation may strike him as more than a little uncertain. He notes, for instance, that high values for plasma cholesterol eoneentration are regarded as typical of myxœdema on the one hand and of diabetes on the other; but he is not clear what rôle cholesterol may play in either ease, nor why the phenomenon should appear in two disorders which otherwise seem to have little in common and may at times be incompatible: for we have seen cases of hypothyroidism in which diabetes appeared whenever the metabolic rate was raised to normal and vanished again when the rate was allowed to drop back.

In many other cases the approved analytical procedures are unintelligible: the serum "albumin-globulin ratio" is based on a quite arbitrary fractionation, some individual proteins appearing in both eategories; the "nonprotein nitrogen of blood' subsumes substances of which some are waste-products and some not, and which certainly do not all vary together; the "CO2-eombining power" determination does not even profess to measure anything existing in the patient, it is a study of the response of the patient's blood to artificial and improbable circumstances; the "blood creatinine" analyses include varying amounts of unidentified materials: the "direct and indirect van den Bergh reactions" defy convincing interpretation. As long as such methods give results that the physician can use, their artificiality may not be of great moment, but the biochemist feels about them much as any seientist feels when his wife insists on replacing a burnt-out fuse with a copper cent. that the procedure is inclegant and potentially dangerous. The wife, of course, experiences : similar sensation when the scientist insists on setting forth in the morning with one button too few.

Since the methods of blood analysis have been singled out for disparagement, it is only fair to pay some tribute to their values. Consider for a moment the dependence of a diagnosis of hyper-insulinism or of renal glycosuria on blood-sugar determinations; of gout on uric acid, of hyperparathyroidism on scrum calcium; of nephrosis on scrum protein—to instance only a few. In a broader sense, too, these

practices have been salutary; the behaviour of the sulphonamides has taught us to think of dosage merely as a method of attaining and maintaining the desired concentration of the drug within our tissues. This logical attitude is now even reaching the nutritionists, whose dictatorial insistence on the eternal "rightness" of some specified figure for the daily intake of vitamin X or Y is being ever so slowly tempered by the realizations that men are not mass-produced to a standard pattern, and that a vitamin exerts its influence in the brain or liver or muscle and not in the œsophagus; in this case, unfortunately, the blood is not truly representative of the tissues as a whole. Perhaps there is a general lesson here; it is above all the ease of sampling that directs our attention to the blood, and it is only for a very few substances that we know the relationship between the concentration in the blood and the concentration in the tissues. Our ignorance is brought home by Hastings' plausible argument that the pH of muscle varies inversely with that of plasma.

These questions will become practical and acute when the cyclotron and the uranium pile supply weapons against disease, especially cancer, instead of weapons against our fellowmen. The hypothesis is that we can find radioactive materials which will be avidly taken up by the cells we wish to destroy, so as to produce intense ionizing radiations within them, while the concentration of the substance and the intensity of the radiation in other parts of the body remains harmlessly low. It has already been shown that radio-iodine behaves in this way towards a thyroid carcinoma and its metastases, and exerts within the cancerous thyroid cells a destructive power unattainable by external roentgenotherapy and yet safe. Other elements might have the same specific affinity for other cell-types, as iodine has for the thyroid; but good instances do not suggest themselves. There is need for research here; and if the chemical elements prove disappointing, it is conceivable that we might find organic compounds with specific affinities so high as to retain them within cells of some designated type, long enough at least for the short-lived radioactivity of C11 to decay to harmless levels.

A review of the applications of biochemistry to medicine would be worse than incomplete if it made no mention of the many valuable therapeutic agents whose existence was first demonstrated in laboratory experiments and

whose preparation in usable form was first achieved by biochemical techniques: the hormones from insulin to corticosterone, the vitamins from calciferol to folic (pteroyl-glutamic) acid, and many others. Even if we now use these things mainly in the form of synthetic products from the manufacturer, the biochemical isolation was a prerequisite for the synthesis; and even if we soon find ourselves using the mightier agents of an atomic age, the biochemical investigation of their localization and metabolism will be essential. Many times, too, biochemical studies have suggested therapeutic uses for materials originally prepared for quite other purposes: the nitrogen-mustards, aluminium acetate, and thiouracil are topical if insufficiently-tested examples.

To elaborate this theme would be to destroy the emphasis for which this review has striven, upon biochemistry as a science: not a mere purveyor of devices and products, but a body of knowledge increasingly integrated and imbued with a philosophy of its own. It is tempting, if invidious, to name briefly some of its most fundamental -problems. There is the problem of the manner in which the foodstuffs are oxidized in the unfavourable circumstances of low temperature, great dilution, and neutral reaction: now partly solved by the recognition of many of the essential catalysts, several of which have gained in interest unpredictably from their relation to the vitamins. There is the problem of the transfer of energy, as from oxidation to growth or from glycolysis to muscular contraction; now interpreted mainly in terms of the organic phosphates. There is the problem of the rates of breakdown and resynthesis of living matter, with its relevance to wasting disease and convalescence; now vastly illuminated by the use of isotopic "tracers", especially by Schoenheimer and his pupils. There is the still baffling problem of the fine-structure of proteins, crucial for immunology and for the questions in enzymology previously discussed, and crucial also for discussion of the mode of action of genes. Twenty-five years ago, these problems loomed distantly before us, a majestic and inaccessible Himalaya; today we are struggling in the foothills, and here and there, if the peaks remain unscaled, we have gained the passes and look out towards new Biochemistry is passing through a horizons. revolution almost as great as that of biology in the years of the cell-theory, or of physics in the days of quanta and relativity: it is coming of age. .

SOME PHYSIOLOGICAL PRINCIPLES IN SURGERY OF THE STOMACH*

Lester R. Dragstedt, M.D., Ph.D.

Chicago, Ill.

FOR this occasion, I have chosen to speak on eertain aspects of the physiology of the stomach that appear to be of significance in the surgical treatment of peptie uleer. During the past four years, my associates and I have seetioned the vagus nerves to the stomach as a method of treatment for severe and intraetable The operation has been performed on 140 patients, and the results thus far have been so favourable that this method has replaced all other types of surgery for this disease on our service. During the course of this work, certain observations have been made on the secretory and motor functions of the human stomach that east additional light on the pathogenesis of peptic uleer, and it is this problem that I should like to deal with this afternoon.

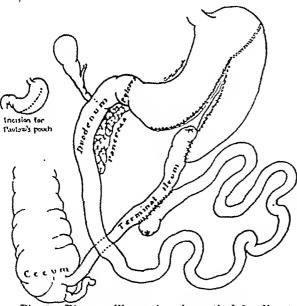


Fig. 1.—Diagram illustrating the method for diverting pure gastric juice from a Pavlov pouch into the intestines.

The central fact that has been brought into view by the work of the experimental laboratories on the cause of ulcer may be stated as follows. Pure gastric juice. as it is secreted by the mueosa of the fundic part of the stomach. has the eapacity to digest all living tissue including the walls of the jejunum, duodemim. and of the stomach itself. Previous damage to the mueosa does not seem to be required, but when this is present, the involved area sueeumbs more rapidly. Demonstration of these facts has been made in various ways, and I choose for illustration two experiments I made several years ago.1 The pure undiluted fundus secretion is readily obtained in dogs by making an aecessory small stomach pouch after the method of Pavlov. If this pouch is united with the intestines (Fig. 1) instead of being converted into an external fistula, the gastric juice excited by the ingestion of food passes directly into the intestine. No dilution or neutralization of the gastric secretion takes place since the food is in the larger compartment of the stomach. The intestinal mucosa exposed to this pure secretion is rapidly digested away. The resulting defeet has the same punched-out appearance characteristic of peptic ulcers elsewhere (Fig. 2), and

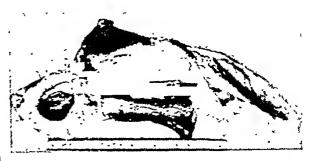


Fig. 2.—Photograph showing a large penetrating uleer in the ileum opposite the entrance of gastric juice from a pouch as in Fig. 1.

tends to progress, with hæmorrhage or perforation the final result. The experiment is a counterpart of those ulcers occurring in the intestines of man in the region of a Meckel's diverticulum containing heterotopic gastric mucosa.

While the Pavlov accessory stomach ponch has proved to be of the greatest value in studying the physiology of gastric secretion, it has certain definite disadvantages. It is difficult to preserve the entire vagus supply to the isolated stomach, and the small size of this compartment is a further handicap. In order to avoid these objections, about 17 years ago,² we began a series of studies on gastrie physiology, utilizing a completely isolated stomach preparation such as was described by Fremont.³ The stomach is tran-

^{* 1946} Lecture in Surgery, Royal College of Physicians and Surgeons of Canada, Ottawa, November 16, 1946.

This work was aided by grants from the Douglas Smith Poundation for Medical Research of the University of Chicago and Mr. Andrew E. Wigeland.

From the Department of Surgery of the University of Chicago.

seeted at the eardia and pylorus and the ends elosed. The esophagus is anastomosed either to the upper end of the duodenum or to the side of the jejunum (Fig. 3). Great eare is taken not to interfere with the vagus nerves or with the blood supply to the isolated stomach. The gastrie secretion may be collected quantitatively

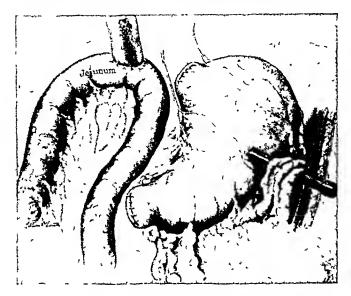


Fig. 3.—Diagram illustrating the totally isolated stomach with intact blood supply and vagal innervation.

by means of a gold-plated eannula fixed in the fundus with several pursestring sutures. While the surgical technique involved presents some difficulties, my associates and I have studied over fifty successful preparations of this type in our laboratory. Of the many observations made, I should like to comment on three that appear to have special significance to surgeons.

Although in such a preparation the ingested food passes directly from the esophagus into the intestines, the isolated stomach secretes large amounts of highly acid gastrie juice. One to two litres are regularly obtained each 24 hours from dogs weighing 10 to 12 kilos. This seeretion produces a progressive hypochloræmia, alkalosis, and dehydration in spite of free aeeess to unlimited food and water. The animal literally secretes itself to death in the short space of 10 to 12 days. Death is due to the loss of sodium and ehloride ions in the gastric juice, since if these are provided by the daily intravenous injection of physiological salt solution, the animal remains in good health for long periods, and no alterations in the ehemistry of the blood occur. It is a startling fact that the meehanism which provides for the secretion of gastric juiee takes precedence over those factors which operate to maintain a constant composition of the blood upon which life itself depends. The experiment indicates clearly the effects that may be expected in man whenever the gastrie juice fails to reach the lower absorbing intestines where its electrolytes can be returned to the blood.

A second observation of interest in this experiment is the frequent appearance of typical peptic ulcers in the isolated stomach (Fig. 4). Twenty-seven such lesions have been found to date, and I believe it is quite probable that they would appear in every ease if the animal could be kept alive for a year or more. This is significant when contrasted with the almost complete absence of spontaneous ulcers in the dog. Of added interest is the fact that these ulcers



Fig. 4.—Photograph showing a spontaneous gastric ulcer in the isolated stomach as in Fig. 3.

never appear in a stomach isolated in the same way but to which the vagus nerves have been divided. The appearance of these uleers appears to be correlated with the volume and acidity of the gastrie juice. They may develop within a week in a profusely secreting stomach, or not for several months when the volume of secretion is low. It seems likely that the absence of uleers in the isolated stomach after vagus section is also due to the greatly diminished gastrie secretion characteristic of these animals.

A third point of interest brought out by the experiments on the isolated stomach concerns the amount and quality of the gastrie secretion and of the effects of vagus section thereon. When we reflect on the extensive studies that have been made on the gastrie secretion of man and lower animals, it seems strange that we have no reliable data on the total volume of gastric juice produced in 24 hours, nor on the propor-

tion of that volume that is dependent on nervous and on humoral stimulation. Apparently, there is no way to subject the stomach of man to the normal stimulus of food and eolleet the total secretory output. The isolated stomach of the dog is favourable for such studies since the gastrie juice can be recovered quantitatively for many months. The nervous component of gastrie secretion remains intact, as does that portion of the humoral element dependent upon the release of gastrin from the upper intestinal The failure of food to enter the stomach possibly decreases the amount of gastrin produced, and, of course, the mechanical effect caused by gastrie distension is absent.

In a study that is presently being conducted in my laboratory with the aid of Drs. E. Bruce Tovee and Edward R. Woodward, the following data have been secured. One animal secreted an average of 1,100 e.e. of gastric juice per 24 hours for a two-week period, with a free acidity of 116 clinical units. This fell to an average of 410 e.e. with a free acidity of 30 clinical units after division of the vagus nerves above the diaphragm. A second animal secreted an average of 500 to 800 e.e. with a free acidity of 33 to 90 clinical units before vagotomy, and this was reduced to 40 to 100 e.e. with a free acidity of 0 to 12 clinical units after the vagus section.

It is clear that in such a preparation, neurogenic factors play a much greater rôle than humoral or other influences in determining the total volume of gastric juice produced in 24 hours and especially of the output of hydrochloric acid. In the first case, the acid secreted was reduced by the vagotomy to one-tenth of the original amount, and in the second, to about one-sixticth of that originally produced.

If it be conceded that pure gastrie juice can digest all living tissues, the question arises, why is not the stomach and duodenum normally digested away. The answer seems to be that these tissues are not exposed to pure gastrie juice for any long period of time. Food, which is the normal stimulus for gastrie secretion, is also the chief factor which protects the nucosa from its corrosive action. Other factors which play a similar but less important rôle are the neutralizing and buffering action of the gastrie mucus and the alkaline duodenal secretions. Exaltof and Mann and Williamson's demonstrated that failure of the duodenal secretions to reach the upper intestinal tract would regularly lead to

the development of typical peptic ulcers in experimental animals. The elinical significance of this discovery was lessened somewhat when it became evident that abnormalities in panereatic and biliary secretion do not occur in ulcer patients nor is there failure of these secretions to empty into the duodenum in normal fashion.

The experiment of Wangensteen and his associates probably bears more directly on the elinical problem. These investigators produced and maintained an excessive continuous secretion of gastrie juice in the empty stomachs of experimental animals by implanting pellets of histamine and beeswax into the subcutaneous tissues. The gradual absorption of histamine provoked a constant stimulation of the gastrie glands and typical peptic ulcers promptly appeared in the duodenum and pyloric antrum.

These findings take on added significance in view of the recent demonstration that an excessive continuous secretion of gastrie juice occurs in most patients with peptie uleer. The work of the older gastro-enterologists demonstrated that patients with uleers, on the whole, secrete a little more gastrie juice in response to the stimulus of food, alcohol, or histamine than do normal individuals. The difference is, however, not very great and is not sufficiently uniform to have much diagnostic value. It is in the activity of the empty stomach that the more striking contrast is seen. This is best determined at night when the patient is shielded from the sight and odor of food, and the stomach has been earefully emptied and lavaged. A Levine tube is introduced through the nose into the stomach and constant suction maintained for twelve hours until the following morning. Under these conditions, an average of 250 to 400 c.c. of fluid is obtained from the stomach of normal adults and of patients with gall stones, regional enteritis, and miscellaneous diseases other than peptic ulcer. The free acidity of this aspirate ranges between 0 and 20 clinical units, indicating that the output of the parietal cells is small and that considerable dilution and buffering has occurred.

Patients with duodenal ulcer, on the other hand, have uniformly been found to yield under identical conditions a night secretion of 600 to 2,500 e.c. with a free acidity of 40 to 110 clinical units. If this is calculated in terms of hydrochloric acid content, it is apparent that the ulcer patient secretes from 2 to 10 times as much acid as does the normal individual when there is no

required to produce its complete paralysis. Eserine restored the functional activity of the paralyzed vagus nerve.

The next problem was to study the effect of quinine as well as of its substitute atabrine (atebrin, akriehin, mepaerine) on the vagal innervation of the gastrie glands. The present eommunication deals with an investigation of the effect of quinine and atabrine in dogs on gastric secretion evoked by two methods: (1) by faradization of the vagus nerves; (2) by subcutaneous administration of histamine dihydroehloride in anæsthetized dogs. The first method is representative of parasympathetic stimulation of the gastrie glands, the second one of their ehemical stimulation. Besides this the effect of quinine and atabrine on vagal gastrie secretion was tested in a dog with esophagotomy and a gastrie fistula.

The following preliminary communication is a report of some experiments on the effect of these two drugs on gastric secretion in the dog.

EXPERIMENTAL RESULTS

Total number of experiments performed with intravenous administration of quinine bisulphate and atabrine was 26. The gastrie secretion was evoked by rhythmic, alternate vagal stimulation in 8 of them, and by histamine in 18. Apart from minor variations, analogous and eonsistent results were obtained in each of the two types of experiments: vagal effect was markedly inhibited by intravenous administration of quinine bisulphate or atabrine, whereas the gastric secretion induced by histamine was affected only with very large doses of these drugs.

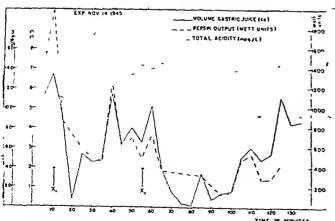


Fig. 1.—Effect of intravenous administration of quinine bisulphate on the volume and composition of gastric secretion produced by rhythmic, alternate vagal stimulation. X, 0.2 gm. quinine bisulphate injected intravenously. X, 0.2 gm. quinine bisulphate injected intravenously.

Quininc bisulphate was introduced intravenously in anæsthetized dogs in doses averaging 18 mgm. per kg. body weight. A single dose of 0.2 gm. e.g., to a dog of 11.0 kg. (Fig. 1) produced a sharp but rather transitory diminution in secretion. A second dose of 0.2 gm. quinine bisulphate given to this animal produced a long lasting depression. In about one hour and fifteen minutes, the gastrie glands began to respond to the vagal stimulation with a-volume of secretion which approximated the initial level.

The acidities (free and total HCl) of the gastric juice after the administration of quinine followed their usual course, i.e., they decreased with the diminution of the rate of secretion and rose again when the secretion increased. The amount of pepsin discharged from the peptic cells (so-ealled "pepsin output") greatly diminished after the intravenous injection of quinine bisulphate.

Atabrine dihydroehloride was administered intravenously to anæsthetized dogs in doses averaging 10 mgm. per kg. body weight. Such doses were used because it was demonstrated, that the effect of atabrine on the heart vagus (Gertler and Karp) and on the coronary blood vessels (Babkin and Melville) was approximately five times greater than that of quinine.

Atabrine, like quinine, greatly diminished the vagal secretion and the discharge of pepsin from the peptic cells (Fig. 2). The acidities of the

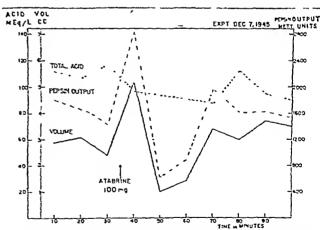


Fig. 2.—Effect of intravenous injection of atabrine on the volume and composition of gastric secretion evoked by rhythmic vagal faradization.

gastric juice paralleled the course of the secretion.

It is important to note that during the first 5 to 10 minutes after administration of quinine or atabrine there was an initial increase of the gastrie secretion, followed by inhibition. This can be attributed in all probability to the

transient dilatation of the blood vessels in the stomach. Both drugs produced a fall of blood pressure which was due not to eardiac depression, but rather to their direct action on the blood vessels. Dreisbach and Hanzlik (1945) have shown that the seat of vasodilatation following intravenous injection of quinine is in the peripheral blood vessels. Babkin and Melville (1946) demonstrated that quinine and atabrine dilate the coronary blood vessels of the perfused isolated rabbit heart. Atabrine produced this effect after administration of atropine.

As was already mentioned above, the gastric secretion evoked by histamine (Fig. 3) was in-

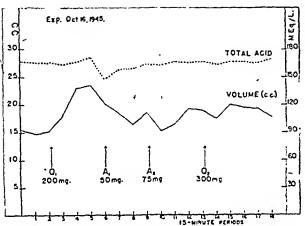


Fig. 3.—Effect of intravenous injection of quinine and atabrine on the volume and acidity of gastric secretion evoked by subcutaneous administration of histamine. Q = Quinine bisulphate. A = Atabrine dihydrochloride. The secretion was not diminished.

hibited only by toxic doses of quinine or atabrine.

Intraduodenal injection of quinine in ansesthetized dogs in varying amounts (from 100 mgm, to 1 gm.) also inhibited the gastrie secretion elicited by stimulation of the vagi. However, if the second injection of the drug was administered too soon (less than 3 hours) after the first, it did not produce the desirable inhibitory effect. This was probably due to impaired absorption of quinine.

The result with atabrine, under similar experimental conditions, was not as well defined, although a somewhat delayed inhibitory action on the vagal gastric secretion did occur after intraduodenal injection.

Experiments on a normal dog with asophagotomy and a gastric fistula. Oral quinine therapy produced a slight or no inhibitory effect on the gastric secretion evoked by 5 minutes shamfeeding. However, in some experiments after discontinuation of the quinine therapy (which lasted one week) the inhibition became apparent. More satisfactory results were obtained with atabrine (0.35 gm. of atabrine daily in three divided oral doses for one week to a dog with an average weight of 23 kg.). There was a marked inhibition of gastrie secretion evoked by 5 minutes sham-feeding (Fig. 4).

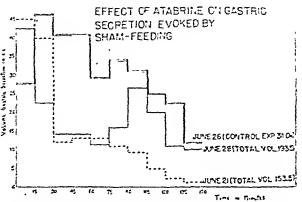


Fig. 4.—The effect of atabrine on gastric secretion in response to five-minute sham-feedings in a dog with an esophagotomy and a gastric fistula. June 21, during atabrine therapy. June 26, control after therapy discontinued. June 28, 0.1 gm. atabrine 25 min. before sham-feeding.

Discussion

The inhibitory effect of quinine and atabrine on gastric secretion evoked by vagal stimulation and absence of this effect when the secretion was induced by histamine administration can be explained in terms of the different mechanisms which participate in the stimulation of the gastric glands in each ease.

There is good reason to believe that the vagus nerve acts on the secretory cells of the gastric glands through the intermediation of a chemical transmitter—acetylcholine. In all probability aminine or atabrine interferes in some yet auknown way with the action of acetylcholine in the excitatory process. It was demonstrated for the heart vagus (Babkin and Ritchie, 1945) that its paralysis by quinine could be fully restored by eserine, which is known to prevent the destruction of acetylcholine by the choline exterase. and thus increases the concentration of the chemical transmitter at the nerve endings. Other explanations of the restorative action of eserine can be given, e.g., that quinine diminishes the permeability of the cellular membranes for acetyleholine whereas eserine increases it; or, that quinine interferes with the origination of an action current by acetylcholine at the vagal nerve endings, and eserine abolishes this un-

A GEOGRAPHICAL STUDY OF HAY FEVER PLANTS IN MANITOBA*

Charles H. A. Walton, M.Sc., M.D., F.A.C.P. and Margaret G. Dudley, M.Sc. (Man.), Ph.D. (Minn.)

Winnipeg, Man.

THE accurate diagnosis and treatment of pollinosis in any area demands a knowledge of the flora producing air-borne pollen in that area. While atmospheric studies of pollen are very helpful, they are limited in their usefulness for many obvious reasons. Such atmospheric studies have been reported in Manitoba.1,2 During the past several years, we have made notes of the location and density of the various important hay fever plants in this Province, but throughout the summer of 1945, one of us (D) made an extensive and systematic tour of the inhabited parts of the Province to clarify our knowledge. Previously, information had been obtained from many sources, such as the Provincial Department of Agriculture and its field representatives, the University of Manitoba, Department of Botany, schools, etc. Much of this information was useful, but sporadic, and much required confirmation and This report is intended as an authoritative record of the situation as it is known at present.

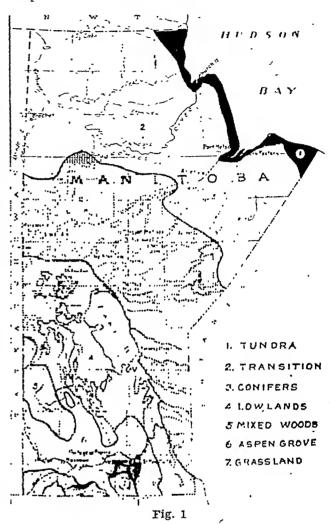
Manitoba is located in the centre of Canada and bounded on the south by the 49th parallel of N. latitude, which separates it from the states of Minnesota and North Dakota. To the north, it extends to the 60th parallel and in the west it is bounded by Saskatchewan, a prairie province. Although Manitoba has an area of 251,833 square miles, only 105,130 or less than 42% is accessible. Of this accessible area, which is south of parallel 54:50, 19% is covered by water, 36% is forested, 12.4% is cultivated and 10.2% is grass land. Muskeg occupies 18% and the balance is made up of rock and bush and, of course, by townsites and roads. Thus, for the purpose of this study, less than 25% of the accessible portion of the Province, or one-tenth of the whole province is of primary importance as a source of hay fever plants.

The accompanying map indicates the vegetation zones of Manitoba. The great northern portion consists of tundra, a transitional region and a coniferous zone. The area east of Lake Winnipeg is part of the rocky forested region known as the Pre-Cambrian shield. The arable and most densely inhabited portion is found in the southern and western part of the province and consists chiefly of grassland and aspen grove. The lowlands occupy a wide diagonal strip, extending in a northwesterly direction, between the large lakes. This area is transitional between the coniferous belt and the Much is swamp and muskeg, but there mixed wood.

of Allergists, June 1946.

From the Department of Allergy Division of Medicine, the Winnipeg

is also some farmland. This cursory description of the Province will indicate its botanical form. The forested eastern and northern portions have little grass and none of the troublesome weeds have reached it except in such resort areas as Kenora which used to be a hay fever refuge, but which is now becoming infested with the ragweeds and sages as roads are built and farms developed in the small fertile valleys.



Plants responsible for producing clinical pollinosis are those whose pollen is wind-borne or anemophilous, therefore we have confined our survey to these. There are three broad classes of these anemophilous plants; trees (including shrubs), grasses and weeds. The latter includes some true grasses, such as couch grass and wild oats. These three broad classes have distinct pollination periods. In the spring the trees and shrubs have a short and intensive one. In the early summer the grasses pollinate heavily for a few weeks, although some continue to bloom all summer. The weeds pollinate in late summer and early autumn.

TREES AND SHRUBS

Native trees in Manitoba comprise both con-The former iferous and deciduous species. occur extensively in the eastern and northern

^{*} Presented at the meeting of the Canadian Society

parts of the Provinee. They pollinate heavily in May and in late June when the lakes are covered with a thick yellow film of spruce or pine pollen respectively. It is generally thought that these pollens are not toxic, but further study may show that they play some part in hay fever. Indians in these areas are said to have seasonal rhinitis at this time, but we have not been able to establish proof. The most abundant conifers are black and white spruce, balsam fir and jack pine. There is also some tamarack, Eastern white cedar, white pine and Norway pine.

The most important deciduous trees eausing pollinosis are the poplars, the Manitoba maple (Acer interius or A. negundo), the white elm (Ulmus americana), the green ash (Fraximus pennsylvanica), the black ash (F. nigra), the basswood (Tilia americana), the paper birch (Betula papyrifera), the bur oak (Quercus macrocarpa), and the peach-leaved willow (Salix amygdaloides). The poplars, maple, elm and ash are planted extensively in the cities, towns and villages. Of the many shrubs, the most important are the willows (Salix spp.), the alders (Alnus spp.), the hazels (Corylus spp.) and the dwarf birches (Betula spp.).

Native poplars include the aspens (Populus transloides) which is the most abundant tree in the southern part of Manitoba, the balsam

DISTRIBUTION OF TREES

poplar (P. balsamifera), the cottonwood (P. deltoides), and the large-leaved poplar (P. grandidentata). Pollination is early, usually in the latter half of April, the average date being April 20. The pollen is abundant and toxic.

The elm is found naturally along the water courses, in the aspen grove belt and is very extensively planted in eities and towns. It pollinates heavily for a few days, usually in the last week in April, but the dates vary between the extremes of April 18, (1946) to May 11. (1945). Many patients are very sensitive to elm pollen.

The Manitoba maple pollinates about the same time as the elm or soon after, but has a slightly longer pollination period. It is native along the water courses and is widely planted in urban It sheds an abundance of and rural centres. toxic pollen. The ash commonly pollinates early in May, but may not do so until the fourth week of May, as in 1945. It is found with the elm and maple in moist habitats, but is less abundant and is probably of minor clinical importance The paper birch pollinates about the same time as the ash. It occurs in all wooded areas, except the aspen grove belt. It is not extensively cultivated, but produces much light pollen of doubtful antigenicity. Oak is the last tree to bloom, usually after mid-May and it has a more prolonged pollination period, often extending

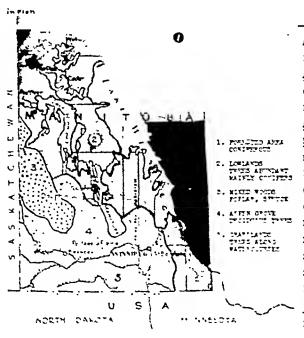


Fig. 2

POLLINATION DATES OF TREES 20 5 10 15 to \$5 40 9 5 ALDER PUBSY WILLOW ASPER COMMON HAZEL BEARED BAIRL AKERICAK ELM MANITORA MAPLE BALSAK POPTAR FAFTH BIFCH GREEN ASE COTTONIOSD FLACK ASH DEARP BIFCE SHINING VILLOR PEACE LEAVED WILLOW -EUR CAI LOYS LEAVED WILLOW

Fig. 3

2. Those of secondary importance. (a) Amaranthaceæ—pigweeds: (b) Polygonaceæ—buckwheat, docks, sorrel; (c) Plantaginaceæ—common plantain: (d) Leguminosæ—clover and alfalfa.

COMPOSITE (AMBROSIACEE AND CARDUACEE)

Ambrosiacex.—The ragweed tribe includes the most important members of this family. pollen is plentiful and toxic and its plants also are important as sources of seasonal dermatitis. The giant ragweed (Ambrosia trifida) occurs aeross most of southern Manitoba and has been found as far north as Swan River. It was also found in the resort area of Kenora, Outario, but here the plants were not "giant", being but 18 inches tall. The giant ragweed blooms throughout Angust. Perennial or western ragweed (A. psilostachya or A. coronopifolia) was found to be as abundant as the giant variety, being especially plentiful in the dry grassy areas. As it does not grow very tall, it is apt to be overlooked among the surrounding flora. In contrast, large clumps of giant ragweed are seen readily on road sides and in waste land. western ragweed was found to be plentiful in grain fields also. It blooms towards the end of July and continues through August until the weather becomes too cool to permit the opening of the anthers.

The short or common ragweed (A. artimisifolia) has been reported as occurring in Manitoba, but we were unable to find any in the
Province. Each time it was reported to be
present, the roots were examined and the plant
was found to be the perennial variety. While
it may be only of academic importance, we feel
it should be emphasized that this species was
not found.

The false ragweed, or burweed marsh elder (Iva xanthifolia), belongs to the genus Cyclachæna. It is the most abundant ragweed in the Province and is especially noticeable in the grasslands. It is taller and more leafy than the giant ragweed and comes into bloom in August and continues until the weather is cold. It produces large quantities of pollen which can be distinguished from Ambrosia, microscopically, but not clinically. The poverty weed (Iva axillaris) is found rarely and produces little pollen. The cocklebur (Xanthium communis) is common throughout the Province but does not pollinate heavily and is probably of minor importance in

consequence. Its antigenicity is similar to that of ragweed.

CARDUACEÆ

While this is called the thistle family, its most important members from a clinical point of view are the sages (Artemisia spp.) of which there are several species in Manitoba. Although they produce very toxic pollen, they bloom late in August and September and thus do not produce much pollen unless the season is late.

The most abundant of the artemisias is pastnée, or prairie sage (A. frigida). It forms a silvery mat over gravelly hills and in other dry habitats, especially those which have been overgrazed. It is common in the grasslands in southwest Manitoba and as far north as Russell. A. ludoviciana (prairie or wormwood sage) is also widely distributed in dry places.

Biennial wormwood (A. biennis) is abundant in moist habitats, such as depressions in fields, roadsides and waste places. Its leaves are green, rather than silvery.

Other sages occurring widely in Manitoba are dragon sage (A. dracunculoides) in the western half of the Province, wormwood, (A. absinthium) is fairly common in all settled areas and A. caudata grows well to the north.

The pollen of all the sages is closely related antigenically.

CHENOPODIACEÆ

This family contains three of the principle causative agents of fall hay fever in Manitoba. These are Russian thistle (Salsola pestifer), burning bush (Kochia scoparia) and lamb's quarters (Chenopodium album). Russian thistle blooms from late in July through August. It is abundant in the drier parts of the grasslands, but is seen as far north as Dauphin, in dry seasons. Its ineidence varies greatly, being very troublesome in drought years and much less abundant in normally moist seasons. It produees an abundance of very toxic pollen and is a major eause of hay fever in dry years. Burning bush (also called summer cypress) occurs as a weed in all urban areas where it has escaped from cultivation. It is especially abundant in Winnipeg. It blooms in August and sheds an enormous amount of very toxic pollen. Antigenically, it is very closely related to Russian thistle.

Lamb's quarters occurs as a garden weed in all settled areas and when it is very abundant,

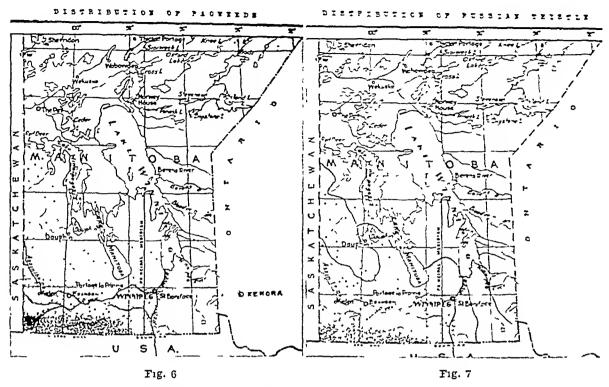


Fig. 6 —The dotted area indicates the extent of ragweed distribution as it was found. The clarative of the strippling represents the ragweed population density.

causes hay fever locally. In 1945, it was unusually vigorous and plants eight feet tall were noted. It blooms in late July and early August. Related species of equally wide distribution are the oak-leaved goosefoot (C. glaucum) and the maple-leaved goosefoot (C. hybridum). They are much shorter plants and their pollen does not travel far.

The Russian pigweed (Axyris amaranthoides) also blooms in July and Angust and is widely distributed on cultivated land and in waste places of all towns and villages. Its clinical importance is not known. The shadscoles or saltworts (Atriplex spp.) are found in dry and saline habitats throughout the Province as far north as Flin Flon, but are not abundant. As they produce little pollen they are probably of little clinical importance.

AMARANTHACES

The principal weed of this rainly occurring in Manucha is the redroot pigweed. A. retro-tlerus) which blooms in July and August. It is very commonly seen on cultivated 1 nd, nd in waste spaces. It is not generally abundant, though it may be so in pateles in sattled areas. Pollmation is not profuse, so that it is ant to be important only where the plants, it manufous

Related species found are the amaranth tumbleweed (A. gracizans) and the prostrate amaranth (A. blitoides)—They are found in all towns but are not abundant and are easily overlooked

Polygon (CL)

The only wind-pollmated genus of this ramily found widely distributed was Rume's, excited R, exispus (eurled dock and R remains narrow-leaved dock. These plants polling to v July and August. Pollmation is not be $v \to v$, the pollen is of doubtful clinical in part in

PLANTIGAN WOOT

The English plantain when is stored to bottom hay fever plant elsewhere is a top will in Maintoba. The court on plantain in Proton major is abunded in all satisfactors of the Province. It is a very same plantain in the last tobolimate leavily, so it this patients is a second and large in probably tessional and entering and large in probably tessional and entering the last satisfactors with the English plantain which politicals interest value of some pariod, the low control patients in the land of the last satisfactors and large satisfactors and large satisfactors and large satisfactors and the last control pariod and steedily over a long plantain.

LUMPHINGS (CLOSERS ON AUTHER

The members of this family are insect-pollinated normally, but the explosive dis large of weakened by infiltration with fat. Repeated pregnancies and other conditions eausing increased and prolonged intra-abdominal pressure will attenuate this tissue and, if an unusually large hiatus is present, eause or set the stage for herniation at a later time.

Several of our cases gave a history of onset of symptoms which suggests that the hernia may develop as a result of trauma to the abdomen at the very time of the injury but it is thought that the larger proportion of cases occurs progressively over a relatively long period. Like other herniæ, also, the hiatus hernia for the most part, is reducible and the stomach is found in the thorax only in the presence of certain conditions which will be considered.

STMPTOMS AND DIAGNOSIS

In our experience the incidence of occurrence of this condition is not as high as found in some American series. Since October, 1942, however, we have encountered at the Winnipeg Clinic in the investigation of some 5,500 cases for symptoms referable to the biliary and upper gastrointestinal tracts, 53 cases of hiatus hernia. Clinically, women predominated in the series, the proportion being three to two. Only three were under fifty years of age when the diagnosis was established.

The symptoms which hiatus hernia may bring forth are predominantly gastro-intestinal. This has been determined by the experience of various writers and is supported by a review of our own cases. As just mentioned there is considerable variation in the severity of the complaints, depending upon the status of the condition. Briefly the chief symptom noted in our series was distress following eating, especially heavy meals. Oeeasionally this was severe enough to be described as pain. Generally it was noted in the epigastrium or behind the lower portion of the sternum. The fact that pain is also sometimes brought on or aggravated by lying down while relief may follow rising or walking is perhaps typical of the condition and can be explained by the part posture plays in affecting the relation of the stomach to the hiatus. Pyrosis and ernetations were present in almost all cases. Vomiting was not common but usually produced relief. One case of dysphagia occurred in which a small ulcer at the lower end of the œsophagus was accompanied by a hernia. This eould be seen in the barium meals and was cheeked by

esophagoseopy. Harrington explains such a lesion on the basis of pressure by the herniated stomach against the lower portion of the esophagus or the regurgitation of gastric contents into this part. Unfortunately neither the uleer nor the dysphagia responded to the repair of the hernia in our ease. Bowel disturbances were noted in only two instances where intermittent diarrhæa and constipation were associated with the presence of the transverse colon in the hernia. Peptic uleer symptoms with the characteristic pain-food-relief syndrome were encountered only once although uleer was an associated condition in five eases.

Generally the gastro-intestinal symptoms could not be considered urgent except in one of our cases where obstruction to the pyloric end of the stomach caused persistent vomiting and pain requiring early surgery for relief. In most cases the patients were stout and fear of food producing distress had not been sufficient to dampen their appetites. The symptom complex resembles that due to chronic cholecystitis. It is interesting to note that 13 of our cases had undergone cholecystectomy before a diagnosis of hiatus hernia was made and their symptoms had failed to be relieved in a satisfactory manner.

In two eases there was moderate retro-sternal pain referred to the left shoulder and arm suggesting augina but an examination of the cardiovascular system was negative. Palpitation oceurred three times, one ease suffering attacks of paroxysmal tachycardia for many years, the_ electrocardiogram being considered normal for the patient's seventy years. No pulmonary symptoms were encountered in our series. The spasm of the diaphragm induced by the hernia may be associated with phrenic pain which is referred to the left shoulder and even into the arm creating a suggestion of angina pectoris especially if epigastrie distress is also present. Interference with eardiae function by the presence of a dilated portion of the stomach is no doubt the explanation of the palpitation and taehyeardia.

Anæmia has been stressed as an important eondition resulting from erosion from external pressure upon the stomach wall. Our experience with this complication is found in three instances where severe and prolonged hæmorrhage brought the hæmoglobin to below the critical level of 40%, no other cause being apparent for the blood loss.

Hiatus hernia can be a problem of importance to the obstetrician. It has been pointed out that intractable pyrosis of pregnancy which occasionally occurs in the later months and which is not relieved by the ordinary gastric medications and usually aggravated by the recumbent position may well constitute a rarely recognized symptom of this type of hernia. Occasionally it has been reported that patients have died of strangulation of some viscus in such a hernia during labour. Of our cases only two women stated that their digestive symptoms were greatly exaggerated in the latter months of their pregnancies.

In the final analysis it must be admitted that there is no easily recognizable set of symptoms available for eertain diagnosis of hiatus hernia. For the most part the roentgenologist must be relied upon to establish the cause of the symptoms. Therefore it is incumbent upon him at the time of the barium meal to rule out the possibility of this lesion as it so frequently is not suspected. This requires an examination of the patient while in the Trendelenberg position when some method should be employed to increase intra-abdominal pressure. No doubt this represents an increase in the time required for the procedure and therefore a further burden upon the roentgenologist. However, the additional findings as the result of this more complete examination should represent a worthwhile benefit. Because so many of these eases present a history suggestive of gall bladder disease a choleeystogram is the most likely roentgenological procedure to be performed in their investigation. From our experience choleeystitis is a common associate of hiatus hernia. occurring as it does frequently in older and obese patients; therefore this single finding so often does not tell the whole story and choleeystectomy may fail to relieve the patient if the hernia is undiagnosed and not corrected. For such a reason as this we have followed the principle that since in certain cases of upper digestive tract disease one condition may stimulate or mask another, or more than one lesion be present, the examination is not complete without both a barium meal and a gall bladder visualization.

Occasionally the roentgenologist may encounter what is known as a phrenic pouch or ampulla in the terminal portion of the esophagus. This is merely a transient dilatation of that

portion produced by deep inspiration (Fig. 3). Such a dilatation may be mistaken for a hiatus hernia. In a true hernia the gastrie mueosa can usually be identified as it goes through the hiatus (Fig. 4). Doubtful cases should be reexamined, of course, and the differentiation is usually not difficult since no phrenic pouch is seen if the patient breathes normally during the passage of a bolus of barium.

We have not encountered a ease of thoracic stomach associated with a congenitally short œ50phagus. Where such a possibility exists esopha-



Fig. 4 Fig. 3

Fig. 3.—Examples of phrenic ampulla noted during ingestion of barium. Fig. 4.—Hiatus hernia with portion of stomach above diaphragm demonstrating differences in esophageal and gastric mucosa.

goseopy should be employed in order that the length of the esophagus can be determined accurately. Finally, a diverticulum of the lower end of the esophagus might resemble a portion of the stomach above the diaphragm but absence of gastric mucosa and failure of the diverticulum to empty should establish the diagnosis (Fig. 5

TREATMENT

The treatment of hiatus hernia depends upon the severity of the symptoms. Patients who are



Fig. 5 .- Diverticulum at lower end of œsophagus.

finer unances of feeling entrusted to the myocardium. These expressions demonstrate how common knowledge crystallizes correct psychological concepts in idiomatic language and verse long before the ponderous advance of science, for physicians are just now approaching an understanding of the relationship of emotions to bodily functions. We are beginning to understand the unity of mind and body.

The relationship between mind and body has engaged the attention of philosophers and psychologists since man began to wonder about The philosopher Spinoza first succinctly formulated the principle that mind and body were but two aspects of the same phenomenon. Men of medicine, however, persisted in their practical approach to the body as an entity separate from the mind, and in our modern scientific era of cellular pathology and microbic agents of disease, the separation of mind and body became practically complete. In fact, disease was considered a process within a single organ separated even from the remainder of the soma. But gradually the concept of disease is losing its provincialism and becoming a problem of the whole body. most progressive holistic attitude in medicine approaches the disease within the man less and the man with the disease more. - Ultimately an appreciation of the entire thinking, feeling, living mind-body unit is developing. Man has become a psychosomatic unity.

It is often said that nothing is really new; that modern discoveries are only rediscoveries of what our predecessors of the intellectual mediæval world had known by other words. The new researches in psychosomatic medicine seem to fall within this category because physicians have long known that emotional disturbances produce exacerbations of physical diseases. Patients with diabetes, peptic ulcer or celitis notoriously become much worse when under emotional stress, and contrariwise physical diseases tend to make emotionally disturbed patients more obviously neurotic. However, such phenomena do not represent the psychosomatic medicine of which I speak nor do they indicate the concept of mind-body unity of modern medicine. Our present day thesis is concerned with emotional etiology as the initial factor in a causal chain of functional events which may end in tissue disorganizations which we call disease processes.

To comprehend such a causality we must understand the often confirmed observation that subjectively experienced emotions are invariably associated with objective physical activities in structures, innervated by the vegetative nervous system. There is no separation between these subjective and objective phenomena; together they constitute the dynamic mind-body process that we call feelings, affect or emotion. Often it is difficult to detect the visceral components, but with appropriate instruments they can be demonstrated and measured as alterations in intensity or rhythm of vasomotor, pilomotor, sweat, temperature, cardiovascular or respiratory activities. major physical concomitants are specific to the special feeling and purposeful in the homeostatic processes of the living individual, often to prepare it for an anticipated stress or danger which has stimulated a warning signal of anxiety. Although normal feelings such as anxiety are partly subjective to indicate the organism's needs, or certain dangers to it, and partly visceral to prepare the internal economy for adaptation to the present or forthcoming change, the end-result of the emotion may be some form of somatic action which alters the relationship of the total organism to its environment. It attacks or runs away. It must obtain relief from the unpleasant visceral tensions raised within and, if needed, the striped musculature becomes the executive for total action. Neuroses or neurotic behaviour are likewise experienced by feelings and expressed by visceral changes, and finally by somatic action. The neurotic may complain of a depressed mood, or a cardiac irregularity, or an irrepressible -asocial hostile activity; examples in which mood, visceral or striped muscle action predominate, but in all of them there is a detectable and measurable concomitant change in vegetative or sympathetic function. Obviously all neuroses and psychoses are accompanied by alterations in psychosomatic stability.

When feelings alone seem most disturbed the sufferer recognizes its nervous origin, calls it a "nervous breakdown" and consults a psychiatrist. When somatic action is expressed in abnormal behaviour the patient becomes asocial, entangles with the law and is considered psychotic, psychopathic or delinquent. When the visceral organs are intensely disturbed with only secondary apprehension, the

patient consults a general practitioner, internist, gynæcologist or surgeon. These patients comprise 50 to 70% of all medical practice and it is important to know how their troubles develop and what to do about them.

Through the environmental influences of our civilized society that impinge on most of us. we are conditioned early in childhood to suppress or repress from consciousness certain types of feelings and to inhibit the resulting somatic action. We are taught not to get angry and not to strike out in rage. We are forced to give up our childish desires and our expression of hunger for gratification on reaching the age when "growing up" is expected. With the threat of punishment and fear of loss of love. children are forced to repress their emotional hungers and their primitive angry reactions to painful stimuli or situations, or to frustrations. Therefore, all of us approach adult life with a reservoir of inhibited feelings considered as "wrong" or "sinful" and unacceptable to civilized society, and a backlog of unsatisfied immature desires to which we sccretly cling with the greatest of inertia. 'None of us can escape. Many children receive too little gratification and have had too much pressure toward maturity. Such individuals are well prepared for psychosomatic disturbances. Others become exposed to later accidental life situations that surpass their capacities for adaptation and are forced to regress in refuge to earlier phases of emotional development. Whether the universal conflict between inner insecurity and external demands develops early and results in a fixation, on infantile, and hence neurotic. patterns or develops later and causes a regression, the direct expression and feeling of these childish emotions is prevented by well established internal checks and by the external What happens to environmental attitudes. these feelings? What outlet has this energy?

When no eonscious feeling or expression is possible and somatic action is inhibited, only the visceral component of the emotion, which is not under control, is permitted activity. The result is a visceral expression of the feeling that cannot attain conscious recognition. But this inner activity is not of normal short duration or of low intensity; it persists for long and reaches a heightened intensity because the conflict is chronic and the nervous energy can only utilize the vegetative outlet. The result is an

excessive viseeral activity, usually limited to a specific organ, which causes an alteration of function appreciated by the patient as symptoms. If the inner conflict varies in degree or if the stress fluctuates in intensity, so does the symptom.

If the vegetative dysfunction persists for eonsiderable time, tissue changes may develop and the stage of "physical disease" is reached and is detectable by the medical specialist. The demonstrable pathological process is the late end-result and can only be explained by its immediate precursor, the longstanding excessive "dysfunction". For example, gastric dyspepsia caused by hypersecretion, hyperacidity and hypermotility are the precursors However, experience has of peptic ulcer. shown us that chronicity may not be the only factor since dyspepsia may exist for years without uleers and acute ulcers may develop in a few days without preceding gastric symptoms. There is some unknown plus factor. We may now establish a hypothetical chain of causal events that terminate in visceral disease.

- 1. Early demands or frustrations cause specific psychological patterns of excessive or too early inhibition of certain feelings.
- 2. Later life frustrations or stresses act on such a conditioned person or if intense (stress of war) on the most normal individual to inerease the repressed needs or inhibited feelings.
- 3. Evidences of these activated or intensified needs or demands by symptoms of dysfunction of one or more visceral organs
- 4. Irreversible morphological changes in the tissues after long standing functional disturbances

These processes can be better understood if concrete examples are given. I shall present vignettes of ease histories exemplifying hypertension, peptic uleer, colitis and bronchial asthma although many other syndromes could be used as examples.

Mrs. S. was an extremely dependent and infantile person who was always dominated by a mother who believed in lady-like attitudes of pleasantness and imperturbability. No expressions of anger or resentment were permitted without evoking displeasure and tacit threats of loss of maternal love. In middle life, when her daughters became rivals for her husband's affection, the patient developed throbbing headaches which her physician discovered were the result of a functional hypertension. During uncovering psychotherapy, hypertension appeared when the patient was stimulated by a situation calculated to evoke jealous anger, but which she could not feel or express directly. Freeing her inhibitions permitted her to feel angry on appropriate occasions with diminution of her blood pres-

An ex-service man, aged 22 years, entered Michael Reese Hospital because of attacks of severe abdominal These attacks had begun while pain, and diarrhea. in the army overseas and resulted in his evacuation to the United States and discharge. The last attack occurred while at home after a discussion with his father over funds for the purchase of an automobile for his own use when away at school. After thorough but negative medical investigation, the internist in attend-

ance requested psychiatric consultation.

The patient was a well built, tall handsome young man extremely pleasant in his manners and interested in getting well. The father was an attractive dynamic in getting well. The father was an attractive dynamic proverbial type of successful executive who dealt in big business with rapid-fire decisions and continued the same behaviour in his life at home. His mother was a thin, unattractive somewhat complaining shadowy figure who had numerous abdominal operations and frequent attacks of diarrhea. A younger brother of 17 was the only other member of the family. In telling of his family life the patient considered that there was nothing lacking, that everyone was good and nice. Although not effeminate, he gave the impression of cousiderable passive compliance and complacency iu his His war experiences were uneventful and not dangerous. He had been stationed in England for many months with a quartermaster company, functioning as a driver and had gone to France long after D.Day, never seeing combat. Only once had he been near danger and that was while driving through territory into which German paratroopers had penetrated. He had been a "little scared" but had never seen a German. His first attack of abdominal pain came on 10 days later while driving a car for his captain.

Because the patient could not remember any conscious emotional attitudes during any of his attacks of pain it was decided to attempt a reconstruction of the setting prior to his first spell and to uncover the feelings accompanying that particular episode. Accordingly pentothal was administered intravenously and the patient was told that he was driving his truck on the specific day on which he had been a "little scared".

The patient began talking fearfully of his hearing that German parachutists were in the neighbourhood into which he was ordered to drive. Suddenly his truck broke down near a hill from behind which shooting could be heard. By regulation he was forced to stay near his truck until help arrived, so after hiking to the nearest ordnance patrol he returned to the vicinity of his truck and arrested out relief in a few help. of his truck and sweated out relief in a fox-hole. For 45 minutes he remained here aloue in abject fear, although he heard only distant shots. Under pentothal he disclosed his thoughts never before verbalized which were those of a little child pleading for God to save him. He was too young to die and besides he had been a good boy, never harmed anyone. What would mother do if he were hurt or killed? As he eried and pleaded to the Almighty for help he perspired and writhed on the bed and jumped at the slighest noises. As I listened to this first exteriorization of the old forgotten stream of thought there were missing all manifestations of courage and anger. Finally a relief truck arrived and the patient became more aggressive as he directed his fellow soldiers to turn their truck around. As they drove closer to the camp he actually became belligerent and when he saw the guards and machine guns in position, he verbally dared those bastardly Nazis to come this way, "We'll kill them like rats."

After the pentothal interview the patient remembered that he had been scared badly but had forgotten all about it. His fear was then dealt with as an understandably normal reaction and then in a state of emo-tional exhaustion he fell asleep. Subsequent interviews concentrated on "the little boy within the grown man" and the universality of the fear reaction. A few days later another pentothal interview was undertaken in the setting of the first intestinal attack 10 days after the parachute incident. The patient had driven all day long for his commanding officer, an alcoholic captain, who apparently mistreated his men and gave to himself

the privileges of women and liquor although punishing his men for identical activities. The patient was his personal driver and often had to support the captain standing or walking, light his cigarettes and feed him when he was in a state of tremulousness. The captain's alcoholic gastritis and lack of appetite cost the patient many meals for himself.

On this particular day the patient had driven from early morning over badly damaged roads until late at night when they stopped at a tiny French village. The captain ordered the patient to bunk in the truck under the sky while he went into the M.P. station and slept under shelter. Our patient kept reassuring himself that there were no Nazi paratroopers nearby, they had all been cleaned out, that it was perfectly safe, "really perfectly safe", but in spite of this self-conducted psychotherapy he could not sleep for many hours. A few minutes after falling asleep he was awakened abruptly by severe abdominal pains and diarrhea. When the pain became unendurable, he went into the M.P. shelter and sought out his drunken captain who ordered a soldier to take him to the medics. From this local station he was sent through the hospital system, in which'. he had repeated tests for organic disease or infection. and eventually was evacuated home. During this pentothal interview the patient groaned and writhed with his pains. He held his hands over the abdomen, and tachycardia, excessive perspiration and his sickly green-colour left no doubt as to his suffering. He faithfully reproduced his initial attack in its entirety.

When he awakened we discussed the relationship of this attack to his fear at a second exposure to possible parachutists and his reaction to the captain who placed him in a dangerous position. He could not see why he should have felt resentful or angry toward the captain, and since there was a strong resistance against anything but the old "It was his right to order me as he wished" another pontothal was given in a few days. This time the patient was placed again in the village square in the dark and urged to express how he felt toward his After considerable resistance, anger then spilled forth freely and completely. It was documented by countless incidents of discrimination, unfairness, lack of promotion, overwork, etc. The consciously passively accepted eaptain become a strongly hated person who took every advantage of his authoritative position.

After considerable abreaction the patient was interrupted and asked "and how about your father?" The answer was a surprisingly frank and abrupt, "He's the same kind of a guy." In the present tense, he then verbally lived through an event of some years past bebut emotionally highly charged abreaction. Once when the father was absent from home, the patient's fra-ternity held a convention in Chicago and because transportation was scarce, against orders, he borrowed his father's car. While away from home his pet dog had also disobeyed house rules and scampered upstairs into the father's room where it had vomited on a costly rug. On his return the father was very angry and called the patient before him to receive orders for the following punishment; he had to be in the house each night at 6.00 p.m. after high school and could not leave for any purpose thereafter for three months. hear the patient's responses and not the father's angry The patient admitted his accusations and directives. guilt, gave his reasonable excuses and mildly expostu-lated against the severity of the punishment. "Don't you think it is too severe—yes I'll take it like a man and not complain', although under the pentothal he sobbed pitifully. Ten weeks later the father was drunk one night and broke the punishment himself by asking the patient to drive him to his club. He invited his son to have a drink with him at the bar and in a maudlin sentimental fashion admitted that the punishment had been overly severe, admitted that patient had taken it like a man and asked for forgiveness. They shook hands and the affair was over. But during this pentothal the patient gradually worked up into a real angry attitude toward the father which was expressed for the first time.

These emotions were remembered, and discussed after the pentothal had worn off.

Subsequent psychotherapy was directed toward diffcrentiating between infantile conscious appeasement with unconscious intestinal expression of rage, and adult and manly normally expressed justifiable Obviously this was but one episode from a life long pattern. The father at first denied to my questioning any arbitrariness in his attitude. But his wife refused to let him avoid the issue and contradicted him at every turn. She and the boy had been compelled to holster their defenses by alliance against the overstrict enemy and watch always for his weak spots. The father was a boss in his home as well as in his business and issued executive orders to his family or answered requests by a blunt "no" without giving reasons or qualifications. In this manner he wished to "make a man out of my boy" but actually he permitted no manly semblance of equality, forcing only an infantile obedience and ap-Normal emotional reactions could only be peasement. Confirmation of this principle was soon repressed. forthcoming as the boy made his first attempt to express his new-found independence, but the father was sufficiently disturbed at least to act the part expected by the psychiatrist. The result of therapy so far has been good in that there has been no relapse and the father has developed more respect for his avowed successor. The final outcome will depend on the life situations of the immediate future and will determine whether this brief therapy has been enough or whether further psychotherapy will be necessary.

This case has been presented in some detail to demonstrate the principles of procedure in brief psychotherapy of acute psychosomatic states. It demonstrates the processes of uncovering the repressed emotional content directly produced by the precipitating cause of the neurosis and its relation to earlier patterns. This patient showed quite clearly a combination of fear, rage and dependent crying expressed in a psychosomatic symptom. The working through and the reorientation of the patient's concepts of maturity as well as that of his human environment are demonstrated.

But this occurred in a young plastic person with little defensive rigidity. His environment had not yet hurt him too badly. We are less fortunate in our brief psychotherapy when dealing with middle-aged people who have long been habituated to chronic neurotic patterns and have become fixed on the organic nature of their somatic symptoms. For most, it must be sufficient to give them insight into their inexpressible needs and feelings and to teach them to recognize the environments in which their needs can be met and those which must be avoided because they stimulate unhealthy It is surprising how often such simple therapy is successful. It is a kind of therapy that can be employed by the general practitioner. It is identical with that which the old family doctor used so well with his intuitive knowledge of his patients' capacities and patterns of interpersonal relations.

Obviously therapy can be most effective at the developmental level by giving the child the full feeling of the security of being loved. by not inculeating into him fear and guilt in the name of sinfulness. His maturity can only be achieved by these methods and by the training of expression of aggressiveness into constructive social tasks rather than its repression and the inculcation of honest ideals capable of being met by a human being. This is a problem of sound parental upbringing and pedagogy. It is a mental hygiene, a prophylaxis in the time sense of the word for which we now have sufficient backing in theoretical knowledge and practical directives but unfortunately not theteachers or leaders to use them.

The stress of war exposed the weakness of the integration of the human personality and in its devolution the eauses of its faulty structure were clearly exposed. A tremendous cross section of the male youth of our country have developed with weakened capacity to deal with frustrating reality, and matured with deficient or corrupt ideals. They remained emotionally immature. The causes were disclosed to be the frequency of broken homes, unwanted children and disturbed interpersonal relations among Sadistie and over-religious atthe parents. titudes, alcoholism and corrupt ideals wreaked their toll in disturbing the personality development of the children who later became war casualties. Could this be altered by the treatment of a few private or clinic patients? Obviously not! What then is the solution?

Many psychiatrists returned from military service with the idea that adequate and widespread education of parents and teachers and through them education of children for a happier and peaceful life should be the line of direct attack on the problem of neuroses. Teach the parents and the children a way of life that would be more realistic, less corrupt and based on greater confidence in love, order and stability. This is indeed an enormous task made doubly difficult by the incredible stupidity and neuroticism of present teachers and the political corruption of our educational systems. There are too few people of maturity and stability to entrust with the task. It is like trying to dry one's self with a wet towel. The magnitude of the task categorizes it definitely as a social and not a medical problem. nels as our slave and not our master. This we must teach everywhere at all times. We must use fear just as we threaten the child, though subtly, and develop in him fear of loss of love if he does not succumb to the early attempts at domesticity imposed upon him by the family. As to the growing child the threat must be at first implemented by force that serves to drive the inhibition inward as an internalized conscience. Similarly an international conscience must be created before we can develop a peaceful one world.

Such are the psychiatric objectives of our times: to develop people to healthy psychological maturity with inner satisfactions and peaceful interpersonal relations. We hope to teach man to fear his own aggressions so that he may face and master them not in uneconomic and crippling neurotic ways, but in constructive directions. Prevention of neuroses must be accomplished by education. Once developed, individual neuroses must be recognized carly and treated by adequate rational therapy. Psychiatry strives to have therapy of psychosomatic disturbances utilized by all men of medicine and not only by a few specialists.

The magnitude of the problems that confront us in dealing with the emotional disturbances of individuals, nations and the world is tremendous and its complexity seems baffling. No single group of specialists can prevent or cure the psychological ills of the person or his world. All sciences, all nationals, all men must strive for the goal of maturity and freedom from the unhappiness and destructiveness of immaturity and its accompanying symptoms. It is our only hope!

RÉSUMÉ

L'homme est devenu une unité psycho-somatique. Les névroses et les psychoses s'accompagnent de changements dans l'équilibre psycho-somatique et amènent parfois des dégâts organiques irréversibles. Nous atteignons tous l'âge adulte avec plus ou moins d'inhibitions affectives et de désirs inassouvis. Ces inhibitions affectives et de désirs inassouvis. Ces inhibitions et ces désirs donnent lieu aux symptômes, très souvent d'expression viscérale. La persistance des symptômes amène des altérations tissulaires et on parle alors de maladie physique. Le diagnostic d'un état psycho-somatique s'obtient par l'étude psychologique soigneuse des conflits refoulés et de la personnalité du sujet. La thérapeutique, préventive ou curative, s'exercera à combattre les psychiques, à les déconvrir, à les corriger et à donner un cours normal aux émotions inhibées. Le traitement, confié de préférence à un psychiâtre, aura pour but, ultime de promouvoir une psychologie normale, d'apprendre à l'homme de craindre ses propres aggressions. Des exemples caractéristiques illustrent admirablement l'exposé de la médecine psycho-somatique.

JEAN SAUCIER

ANTIHISTAMINE DRUGS*

C. H. A. Walton, M.Sc., M.D., F.A.C.P. and J. A. Kristjansson-MacDonell, M.D.

Winnipeg, Man.

THE advent of a new and promising drug often leads to its over enthusiastic and uncritical use by both the laity and the profession. During the past year the lay press and the radio have given widespread and exaggerated news of a new "cnre-all" for the various allergic diseases. Unfortunately this occurred before the drug became available in Canada and before many physicians had even heard of the new antihistamine compounds. There are now many excellent reports in the literature3, 5, 6, 9 and many physicians have had theopportunity to observe the effects of at least one of these drugs, benadryl. These compounds have been shown to have certain definite therapeutic effects and their toxicity is becoming appreciated through not fully evaluated. For these reasons we have thought it timely to review our present knowledge and to report our own very limited experience.

The clinical conception of allergy developed, early in this century, from the observations made in experimental animal anaphylaxis. While there are many differences between allergy, as we know it in man, and experimental anaphylaxis there are certain common characteristics.

In 1911. Dale and Laidlaw showed that the immediate symptoms of induced anaphylaxis in animals were to a large extent the same as those produced by the administration of histamine. In 1927, Sir Thomas Lewis showed that the various reactions occurring in the skin in response to intradermal injections were the same as those produced by intradermal injection of histamine. He suggested that such reactions were due to the liberation of histamine or a histamine-like substance (H substance). In the same year Best and McHenry established that most living tissues contained histamine. In 1942. Halpern produced bronchospasm in man and in guinea pigs by histamine aerosol. Time does not permit an adequate review of the vast amount of experimental and clinical observation on histamine and its relation to

^{*} From the Department of Allergy in the Division of Medicine. The Winnipeg Clinic.

anaphylactic and allergic phenomena. The comprehensive reviews of Dragstedt¹ and Selle² are recommended. However it can be said that it is now widely, though not universally, held that histamine is at least one of the substances producing the manifestations of anaphylactic shock and possibly of allergy. It is believed also that while histamine is present normally in all tissue it is not free but bound and that it is liberated into the blood and lymph by the antigen-antibody reaction. It is probable too that other substances are also liberated including possibly heparin and a choline.

The treatment of allergic diseases is both specific and symptomatic. Specific therapy involves the removal of the antigen from the patient's environment or hyposensitization. Symptomatic therapy in allergy consists mainly in counteracting the effects of the allergic reaction. As these effects appear to be similar to or identical with the pharmacological effects of histamine the problem of relieving allergic symptoms becomes one of finding a substance which antagonizes histamine.

Until now the two most useful groups of antihistamine drugs have been (a) epinephrin and its related sympathomimetic drugs and (b) the xanthines. The former acted as an antispasmodic to smooth muscle and tended to counteract the increased capillary permeability caused by histamine. Its powerful clinical effect is too well known to warrant further discussion here. The xanthine group including theobromine, eaffeine theophylline and aminophylline (theophylline ethylenediamine) acted by relaxing most smooth muscles other than those of blood vessels. They have been shown to be effective in relaxing the hronehial musculature of man when constricted by histamine or asthma. These drugs have been effective by reason of their own direct pharmaeological activity and may not have been strictly antihistamine in the sense of directly interfering with the action of histamine.

In 1930, Best et al., discovered an enzyme, diamine oxidase, or histominase which when incubated in vitio with histomine, in the presence of oxygen, destroyed it. This reaction was slow in vitro and required several hours but was thought to be more rapid in vite. It was used in animals by injection but preparations could not be purified adequately and there were some toxic side effects. However, it appeared to be active in the body. When administered by month it is destroyed by digestion and is therefore inactive. Attempts to use it clinically were unsuccessful because it could be given conveniently only by mouth. Its clinical use as an antihistomine drug has therefore been disappointing although, further

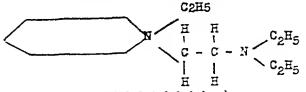
purification may make its parenteral use possible in the

In the period 1937-39 several amino acids, arginine, histidine and eysteine were found to have the property of inhibiting or suppressing the histamine contraction of guinea pig intestinal strips and also of inhibiting the reactions of sensitized intestinal strips. However, relatively large amounts of these amino acids were required and as they are toxic in the higher doses required they were not effective in preventing anaphylactic shock in animals. The importance of these observations was chiefly in the opportunity of studying the possible mechanism of histamine antagonism.

In 1933 Fourneau and Bovet demonstrated that certain phenolic ethers had the ability to counteract the action of histamine in animals. The most effective of these was compound 929F.

Thymoxyethyldiethylamine

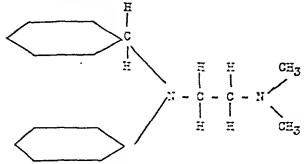
In 1937. Staub and Bovet reported that this substance was effective in preventing anaphylactic shock in animals. However, these phenolic ethers proved to be too toxic and Staub developed another series of the Fourneau compounds having the ethylenediamine radical. The most effective of these was compound 1571F.



N-phenyl-N-ethyl N diethylethylene hamme

Unfortunately these two drugs were too toxic when tried therapeutically and were abundoned.

In 1942, Halpern in Prance developed a new series of related drugs and of these the most active as a histomine antagonist was compound 2239PP



Dimethylaminoethyl-benzylanilu e

This drug received the trade name of antergan in France and it was used clinically with some success and was widely reported in the French literature. More

No contact agent determined.

Relief of irritation and

œdema.

neurotic ædema and our findings in 11 cases would support these observations. Table III gives these findings in tabular form. In these cases the almost intolerable itching made the patients most grateful for the symptomatic relief offered by the drug although toxic effects of varying degree occurred in 6. In most of them the offending agents were discovered and further attacks prevented. It is noted that in

one case with coexistent asthma, the hives were immediately relieved but the asthma was unaffected.

We found that the itching in atopic dermatitus was greatly benefited but the dermatitis was often only slightly improved. Toxic effects were found in four of six cases and in one were so severe that the drug could not be used. In one case of contact dermatitis marked relief

TABLE III. URTICARIA AND ANGIONEUROTIC ŒDEMA

Case	Age	Sex	Duration	Daily dosage mgm.	Side effects	Results -	Remarks
A.S.	36	F.	7 days	100-250	Drowsiness, dizziness, nausea	Marked relief	Caused by injection of crude liver extract. Relief in 30 min. lasting 4 hrs. Subsid-
N.C.	30	М.	1 yr.	50-200	Drowsiness	Insignificant	ed 2 weeks on stopping liver. Food and emotional factors. Possibly some improvement on drug. Recovered on elim.
R.S.	32	F.	Recurr. 6 hrs.	50-300	Drowsiness, dry mouth	Markęd relief	of wheat from diet. Severe giant hives and swollen joints. Relief began 4 hrs. Perm. relief by food and aspirin elimination.
E.L.	32	F.	14 yrs.	50-150	Drowsiness, dizziness	Marked relief	Relief in 30 min. Permanent relief by food elimination.
L.E.	28	F.	3 mos.	100	None .	Marked relief	Food and emotional factors. Relief from irritation in 10 minutes, controlled by diet.
B.M.	19	F.	2 days	50-350	None	Marked relief	Relief in 1 hr. Acute: No previous attack. Cause not known.
M.S.	23	M.	15 yrs.	50-150	Dizzy and weak	Marked relief	Immediate relief. Cause not
J.B.	32	М.	8-9 mos.	100-500	Light headedness	Marked relief	known. Food and nervous factor. Urticaria modified but not controlled entirely.
M.D. R.M.	55 39	F. - F.	3 yrs. 2 days	150 150	Not reported None	Marked relief Marked relief	Probable milk allergy. Drug sensitivity (Soneryl) immediate relief. No effect on asthma.
W.R.	33	М.	1 day	500	Nervousness, slightly drowsy, reduction in urine output and some burning	Moderate relief	Acute—cause uncertain—no previous symptoms. Itching relieved wheals continued and arthrosis of small joints of feet developed.

TABLE IV. Atopic Dermatitis

					1110110 352111111111111		
Case	Age	Sex	Duration	Daily dosage mgm.	Side effects	Results	Remarks
G.O. F.O. G.J.	62 28 57	F. F. F.	2 weeks 2 yrs. 2 yrs.	150 100 150	None None Drowsy, muscle twitch- ing, indigestion, irrita- bility, palpitation.	Marked relief No relief Marked relief	Immediate. Relief of itching Emotional factor. Marked relief of irritation but unable to continue drug because of side effects.
B.B.	26	F.	4 yrs.	150	Dizzy and drowsy	Slight relief	Decreased irritation but rash unaffected. Hay fever pres- ent but not improved.
Y.H.	18	М.	2 days	prn.	Drowsiness	No relief	Chemical factor (Benzyl Benzoate).
S.H.	60	F.	2½ mos.	150	Drowsiness	Marked relief	Relief of irritation and swelling.
	***************************************	,			Contact Dermatitis		
H.T.	71	M.	10 days	150	None	Marked relief	No contact agent determined.

of symptoms was obtained without any toxic effects. These cases are summarized in Table IV.

Beneficial effects were noted in a large proportion of our 35 cases of allergic rhinitis, both seasonal and perennial in which benadryl was used. Again toxic effects of varying

Daily dosage

degree were noted in 26 and in several instances the patients were loath to use the drug, being somewhat alarmed at their strange symptoms. These cases are summarized in Table V.

The cases manifesting both rhinitis and asthma are summarized in Table VI. It will be noted that in many of these cases rhinitis

TABLE V.
ALLERGIC RHINITIS
A.—SEASONAL

Casc	Age	Sex	Duration	mam.	Side effects	Results	Remarks
J.C.	23	F.	5 yrs.	150	Drowsiness, bad taste, palpitation, slight musc. twitching, dry	Marked relief	Weed pollinosis.
J.W.	46	F.	20 yrs.	50	mouth. Drowsiness and diar-	Marked relief	Grass and weed pollinosis.
E.H.	43	M.	7 mos.	150-300	rhosa Drowsiness and dry	Marked relief	Tree pollinosis.
W.T.	32	F.	20 yrs	50	mouth Drowsiness and palpitation	Slight relief	Tree pollinosis. Used only at night because of severe drowsiness during day.
L.S.	41	F.		50	Drowsiness and dizzi- ness	Marked relief	Tree-grass-weed pollinosis.
S.R. H.H. M.W.	28 14 64	M. M. F.	4 yrs. 10 yrs. 1½ yrs.	50 50 150	Drowsiness and dopy None Drowsiness, dizziness,	Marked relief Marked relief Marked relief	Cause not determined. Weed pollinosis. Weed pollinosis.
D.M.	23	M.	10 yrs.	150	palpitation, bad taste Drowsiness, muscle twitching	Marked relief	Weed pollinosis.
H.R. H.O. W.G. R.E.	28 13 23 33	F. F. F.	7 yrs. 1 yr. 9 yrs. 3 yrs.	100 150 150 100	Drowsiness Drowsiness Drowsiness None	Slight relief Slight relief Marked relief Marked relief	Cause not determined. Fungus and pollen allergy Weed pollinosis. Weed pollen and animal sensitivity.
S.S. A.L.	38 29	F. F.	9-10 yrs. 25 yrs.	50 50	None Drowsiness, muscle twitching, palpitation	Marked relief Marked relief	Pollen and animal sensitive. Pollen, animal and dust sensitive.
s.c.	29	F.	14 yrs.	· 100	Drowsiness, dizziness, irritable, chilly, rash	Marked relief	Weed pollinosis.
K.H. C.W.	55 68	F. M.	10 yrs. 1 yr.	100 150	Drowsiness, bad taste None	Marked relief Marked relief	Grass and weed pollinosis Grass pollinosis.
		·	<u>*</u>		B.—PERENNIAL		
N.C. H.K.	32 35	ғ. М.	15 yrs. 1 yr.	100 150	Not recorded Drowsiness and bad taste	Marked relief Marked relief	Cause not found. Cause not found.
J.H.	34	F.	21 2 yrs.	100	Drowsiness	Marked relief	Pollen, animal dust and cos- metic sensitive.
E.W. V.S.	24 20	M. F.	10 yrs. 1 yr.	100 50-150	1 200	Marked relief Marked relief	Cause not found. House dust sensitive.
H.F.	28	F.	1 yr.	50	nausea Drowsy	Marked relief	Pollen, fungus and dust sensi-
в.н.	40	F.	1 yr.	150	Drowsiness and cold	Marked relief	House dust sensitive.
K.G. M.K. M.M. H.M. G.K.	23 22 30 32 30	M. F. F. F. F.	6 yrs. 20 yrs. 3 yrs. 10 yrs. 15 yrs.	50-200 50 50 50-150 100	Drowsiness Drowsiness Drowsiness None None	Marked relief Marked relief	House dust sensitive. House dust sensitive. House dust sensitive. Cause not found. Nasal symptoms improved but eyes remained itely.
G.S. 1L.	33 52	F. F.	1 yr. 4 yrs.	100 50	Drowsiness, dizziness, bad taste	Marked relief	tinued because of severe side effects.
J.M.	19	F.	S yrs.	50	None		Pollen, fungus and dust sensi- tive.
W.M. 1S.	42 22	M. F.	12-15 yrs. 5 yrs.	50-200 200 prn.	Drowsiness dizziness :	Marked relief Marked relief	Pollen, dust and glue sensitive. Cause not found.

symptoms were frequently benefited but the asthma did not appear to be helped in any way. Again toxic effects were frequent. In two cases severe asthma developed when the drug was taken and one developed status asthmaticus and required hospitalization.

Table VII records a series of 6 cases of bronchial asthma which had no other allergic manifestations. In none of these was there any benefit from the administration of benadryl and in 2 instances the symptoms became very much intensified. Side effects occurred in three cases.

Discussion

The results in our small series of 80 cases parallel those reported elsewhere. Benadryl produced good, though temporary, relief in a

TABLE VI.
ASTHMA AND ALLERGIC RHINITIS

					THMA AND ALLER		
Case	Age	Sex	Duration	Daily dosage mgm.	Side effects	Results	Remarks
A.C.	20	F.	10 yrs.	50-150	None	Marked relief	Atopic dermatitis—food? Asthma only on farm, rhinitis relieved by Benadryl. Etiology?
P.H.	35	M.	10 yrs.	100	Drowsy,	No relief	Could not tolerate drug because of side effects. Etiology?
J.S.	8	F.	5 yrs.	30	None	Moderate re- lief	Nasal symptoms predominate and re- lieved. Pollen, fungus dust and orris sensitive.
C.W.	36	M.	11 yrs.	150	None	Marked relief	Nasal irritation and sneezing relieved. Rhiporrhoa and asthma not affected. Pollen sensitive.
E.D.	36	M.	10 yrs.	50	None	Marked relief	House dust and pollen. Asthma not active when treated.
J.S.	28	F.	3 yrs.	150 prn.	Drowsy	Marked relief	Nasal symptoms predominate and com- pletely relieved. Fungus and dust sensitive.
A.M.	56	F.	50 yrs.	150	None	No relief	Nasal symptoms relieved but no effect on asthma. Pollen, fungus and dust.
H.L.	56	F.	2-3 yrs.	150	Urinary com- plaints	No relief	Pollen and dust and food.
E.A.	54	F.	4 yrs.	150	None	Marked relief	Nasal symptoms improved. Status astlimaticus developed. Etiology un- eertain.
E.B.	6	M.	3 yrs.	50	None	Marked relief	Nasal symptoms predominate. Improved few days but relapsed.a Animal and pollen.
W.G. H.W.	39 26	F. F.	12 yrs. 4 yrs.	- 150 150	None Dizziness	No relief Marked relief	Pollen, animal and dust. Nasal symptoms predominate. Pollen
J.S.	18	M.	3-1 yrs.	150	Drowsiness	Marked relief	and dust. Nasal symptoms predominate. Pollen
R.T.	9	M.				1	sensitive.
R.J.	9	181.	8 yrs.	50	None	No relief	Administered for nasal symptoms—no relief—asthmatic symptoms developed half hour later. Pollen fungus and dust.
A.P. R.M.	38 18	M. F.	10 yrs. 1 yr.	200 50	None Drowsiness, dopy	No relief Marked relief	Dust and food sensitive. Hay fever symptoms predominate. Patient felt side effects worse than """ Pollen and fungus.
J.M.	28	M.	18 yrs.	100-150	Drowsiness	Marked relief	on asthma. Pollen dust and feathers.
O.P. `	19	F.	15 yrs.	50	Drowsiness, dizzy	Marked relief	Took 1 capsule only for nasal symptoms which cleared completely and did not recur. Food and dust sensitive.

B.Ł

TABLE VII. ASTHMA

Y.H.	64.ge	Sex	Duration	Daily dosage mgm.	Side effects	Results	Remarks
S. 33 G. E.L. A.O. F.A.	35 7	M. F. F.	6 yrs. 8 yrs. 8 yrs. 33 yrs. 2 yrs. 2 yrs.	150 150 200 150 150 150	Dry mouth Vomiting None None Dizziness and bad taste	No relief No relief No relief No relief No relief	Dust and pollen sensitive. Symptoms intensified. Cause not found. Cause not found. Pollen, fungus, dust and food sensitive. Symptoms intensified. Etiology? Cause not found.

large proportion of eases of urtiearia and allergie rhinitis. The irritation of atopie and contact dermatitis was relieved in many but the skin lesions persisted. The beneficial effects in a few eases of migraine are striking. Asthma was not benefited in any of our eases and in 4 it was seriously intensified following the use of benadryl.

Toxic effects were frequent and of sufficient severity in some to prevent further use of the drug. Many patients complained of unpleasant sensations associated with a clouding of consciousness with the hypnagogie phenomena described earlier in this paper. The ehemical structure of benadryl suggests the strong possibility that it may act as an allergen in the same way that drugs of the aniline series do. We have had experience in two instances which led us to believe that we are dealing with a direct benadryl allergen but as we were unable to, prove our elinical suspicions we are not reporting these two cases. However, it must be born in mind that allergie reactions to benadryl and other antihistamine drugs of the Fourneau series are likely to occur.

In many instances drowsiness could be effectually overcome by the use of strong coffee or caffeine citrate. We did not observe any notable lessening of toxic symptoms on continued use of the drug, but on reduction of the dosage toxic symptoms were modified and the allergie manifestation remained tolerable.

That benadryl may have important late toxie effects was emphasized by the observation of patient E.W. who had perennial allergie rhinitis of undetermined etiology. He was given benadryl with complete relief lasting for several hours and there were no side effects until several months elapsed when he developed troublesome paræsthesias of his hands and was forced to discontinue use of the drug.

SUMMARY

Benadryl and probably the related antihistamine drugs, as at present known, will be limited in their usefulness. At best they are but symptomatic remedies. Their immediate toxic effects are reasonably well known but more serious effects must be looked for and expected. The nature of the compounds and the diseases they are used to treat mean that in those cases in which good therapeutic results are obtained the drug will be used over rather

extended periods. In such eases remote toxic effects on the hæmatopoietic and nervous systems must be carefully considered. Allergy to these drugs is a definite possibility. While many patients are grateful for the temporary relief obtained all prefer to treat their complaints more fundamentally and even urge further allergie study and management.

These drugs have some definite therapeutic value, particularly in urticaria and allergic rhinitis and some troublesome and unpleasant side effects. Perhaps their greatest value will be in providing new methods of experimental study of the fundamental nature of anaphylaxis and elinical allergy.

The bibliography on histamine and antihistamine drugs is very large and the attached references are given to indicate certain key papers and as a guide to others.

REFERENCES

- 1. DRAGSTEDT, C. A.: J. Allergy, 16: 69, 1945.
- 2. Selle, W. A.: Texas Reports on Biol. & Mcd., 4: 138, 1946.
- 3. McElin, T. W. and Horton, B. T.: Proc. Staff Meeting Mayo Clin., 20: 417, 1945.
- 4. FRIEDLANDER, S. AND FEINLERG, S. M. J. Allergy, 17: 129, 1946.
- 5. FEINBERG, S. M.: J. Allergy, 17: 217, 1946.
- 6. ETERMAN, C. H. . J. Allergy, 17: 210, 1946.
- 7. LOEW, E. B., KAISER, M. E. AND MOORE, V.: J. Pharm. & Exp. Therap., 83: 120, 1945.
- MAYER, B. L.: J. Allergy, 17: 152, 1946.
 FRIEDLAENDER, A. S.: Am. J. Med. Sc., 212: 185, 1946.

RÉSUMÉ

Le bénadryl et les produits antihistaminiques voisins n'auront jamais, semble-t-il, que des indications limitées. Ils ne sont encore que des adjuvants qui ne soulagent que le symptôme. On connaît déjà leurs effets toxiques, mais de nouveaux, entore non connus peuvent apparaître. Les bons résultats obtenus signi fient la plupart du temps un usage prolonge de ces produits, et dans ces cas, il faut redouter les effets toxiques sur les organes hématopoiétiques et sur le système nerveux. On peut également devenir allergique à ces médicaments. Mieux vaut encore, semble-t-il. chereher le soulagement définitif dans de nouvelles recherches sur l'allergie. Les références bibliographiques donnent les principales sources de documentation JEAN SAUCIET. sur la question.

Things cannot always go your way. Learn to a cept in silence the minor aggravations, cultivate the gift of tociturnity and consume your own smoke with an extra draught of hard work, so that those about you may not be annoyed with the dust and soot of your complaints.—Sir William Osler.

CÆSAREAN SECTION*

A. W. Andison, M.D., M.R.C.O.G.(Lon.)

Winnipeg, Man.

IN recent years, due largely to improvements in technique the safety of Cæsarean section has markedly increased. This has resulted in a widening of its indications, so that today there are few obstetrical complications which may not, on occasion, be best dealt with by abdominal section. Cephalopelvic disproportion, while still an important reason for its performance, does not exceed by such a wide margin the other indications in any series of cases. But while this might suggest a greatly increased incidence of the operation, actually this need not be so. With the more frequent employment of trial labour as a means of dealing with cases of apparent disproportion, many patients who formerly might have been delivered by elective Cæsarean section are today being allowed to deliver themselves vaginally. On the other hand, having confidence in the outcome for the mother, we can give more consideration than was formerly possible to the fetus. So we find Cæsarean section being done, and justifiably, for some cases of prolapsed cord, for types of placenta prævia other than central, and for certain cases of malpresentation. Cæsarean section is now a safer method of delivery for mother as well as for her child, than a difficult forceps extraction.

As a basis for the remarks in this communication I wish to use a series of Cæsarean sections performed during the six years 1940 to 1945 by myself, or by a resident doing the operation with my assistance. The cases are 158 in number. Of these, more than half were performed in the Maternity Hospital of which I had the complete charge; the remainder were done in three other hospitals to which I acted as consultant. This is a very modest series and too small to warrant any detailed statistical analysis. I wish to use it therefore merely as a starting point for some reflections on the place of Cæsarean section in modern obstetrical practice.

At the outset, let us consider what should be the insidence of Cæsarean section in any well run maternity hospital. According to Stander, it should not exceed 4% and in private practice it should be much lower. There are not a few institutions where this figure is greatly exceeded and rates as high as 8 or 10% are reported from some hospitals in the United States and in Great Britain. One cannot but believe that such figures as these indicate a distorted view of the place of Cæsarean section in midwifery. When one considers that one woman in ten or twelve is delivered by an abdominal operation, one is forced to conclude that a valuable procedure and obstetricians themselves are being brought into disrepute. It needs to be emphasized and re-emphasized, that delivery by Cæsarean section is still a more dangerous method for the mother than delivery per vias naturales for one still encounters doctors, not to speak of patients and their relatives, who consider it the simplest way out of any difficulty that may develop in mid-Reports from various centres show maternal mortality rates as high as 5%.- According to Aleck Bourne the mortality risk of Cæsarean section even in selected cases, is four times that of labour. In a study of cases performed at the Winnipeg General Hospital made by Ross Mitchell in 1938, the death rate from Cæsarcan section was 6 times that of the general rate. In a recent detailed study of Cæsarean section mortality made by Dieckmann of Chicago it is claimed that in favourable circumstances and when the operation is done by skilled operators the maximum total mortality rate should be 0.5 to 1%, still appreciably higher than the rate for vaginal deliveries.

There is not only the question of mortality to be taken into account. There is a good deal of evidence to suggest that the performance of a Cæsarean section reduces a patient's fertility. Even apart from this, once a section has been performed, there is a strong likelihood that the next pregnancy will have to be terminated by the same method, when, in very many cases sterilization will be carried out as well. Moreover there are few obstetricians who will permit their patients to undergo more than It follows, then, that if a three sections. woman has a section for her first pregnancy, the size of her family is likely to be seriously restricted.

^{*}From the repartment of Obstetrics and Gynæcology, University of Munitoba, Winnipeg, Man.

Division of Obstetries and Gynæcology, Winnipeg Clinic, Winnipeg, Man.

In six years in which I was in charge of the Maternity Hospital of the Preston Royal Infirmary there were 113 sections in 5.133 cases, or an incidence of 2% and in the last year of the series there were only 17 sections in 947 cases, that is, a frequency of only 1.8%. This figure includes all cases, booked and emergency.

In the 158 cases there were three maternal deaths, a relatively high rate of 1.9%.

The first of these occurred in a woman of 26, admitted to hospital at the 24th week in her first pregnancy because of congestive heart failure, the result of a rheumatic infection. She made a reasonably good re-covery with rest in bed and digitalis, but was kept in hospital continuously until the onset of labour. About the 34th week her eardiac condition began to deteriorate and at the 35th week she started in labour. Although the baby was small, it was considered advisable to spare the mother the exertion attending a vaginal delivery, so a lower segment Cæsarean section was performed under local anæsthesia and a living child, weighing 2 pounds 15 ounces was delivered. mother's condition was not satisfactory throughout the operation and shortly after its conclusion left ventricular failure became evident and death occurred three hours later.

The second maternal death was in the case of a woman who had already had one elassical Casarean section because of disproportion. At the second operation, done under ether anæsthesia prior to the onset of labour, the abdomen contained very many adhesions, making exposure of the lower segment very difficult, therefore a classical incision was made and a living mature child was delivered. The mother made an apparently satisfactory recovery and was afebrile. On the eighth day, while sitting in bed nursing her baby, she suddenly collapsed and died within a few minutes. Autopsy confirmed the obvious clinical diagnosis of a large pulmonary embolus.

The third fatal case of the series was the only one to occur in my own hospital. The patient was a booked case, a primigravida admitted at the 34th week. had last attended the ante-natal clinic about 10 days previously, when nothing unusual had been noted. At 7 a.m. on the day of admission she was found lying unconscious on the floor of her home and was sent in to hospital as a case of celaupsia. On admission she was stuporous, there was a moderate cloud of albumin in the urine, the blood pressure was 150/90, no ædema was present and the fetus was alive. She was given a quarter grain of morphine, but as the ease presented some rather unusual features the usual routine freatment of eclampsia was withheld pending further observation. Three hours later it was noticed that the pulse rate had fallen to 52 and the patient roused herself sufficiently to complain of pain at the back of the neck. The true diagnosis was now apparent; a lumbar puncture revealed almost pure blood in the subarachnoid space. As the day went on her condition deteriorated further and in the evening convulsive seizures supervened. Cheyne Stokes respirations developed and it was obvious that a fatal outcome was to be expected. With the patient in a moribund condition, a classical Cusarean section was done under local anosthesia and a living male child, weighing 3 pounds 12 ounces was delivered. The mother expired 4 hours later; autopsy revealed a ruptured congenital aneurysm of the middle cerebral artery. The child was successfully reared.

I believe that in such circumstances as these a Casarean section done on a dying patient is to be preferred to the post-mortem Cæsarean section usually advocated; certainly the prospect for the child is better if the former is chosen.

In the series presented. 19 of the sections were of the classical type, the remainder, or 85%. were done through the lower uterine segment. The latter operation was used routinely for elective cases as well as for those in labour. The elassical ineision was reserved for patients in whom the lower segment was inaccessible because of markedly pendulous abdomen, the capacity of the belly being extremely reduced as a result of spinal deformity, or because of extensive adhesions. To argue here the advantages of the lower segment Cæsarean section should be superfluous. To all modern obstetricians the classical operation is practically obsolete. Yet in spite of the years of preaching the superiority of the lower segment operation, notably by DeLee in America and Marshall in England, there are still too many classical operations being perperformed. It has been demonstrated repeatedly that the maternal mortality for classic section is 3 to 4 times that of the lower segment operation in the hands of the same operators. In the series I present there was no death from puerperal sepsis, even though in many instances the membranes had been ruptured for as long as 48 hours and even up to 84 hours.

I cannot imagine any valid reason for failing to employ the low segment operation as a routine. Technically it is only slightly more difficult than the classical section. It involves working in a somewhat less accessible field, and requires the clevation of a peritoneal flap before incising the uterine musculature. It therefore takes a little longer time, but is a neater procedure, involves less blood loss and is more satisfying to the surgeon, apart altogether from its advantage to the patient, than the old "smash and grab" classical operation. I have taught many hospital residents (within a reasonably short time) to do the operation proficiently.

However, it must be admitted that one does encounter trouble more often in the lower segment section. In some cases where the fetal head is deep in the pelvis, it is no easy matter to dislodge it upwards and through the uterine incision, and it may take all the strength of one's hand and forearm to accomplish. In such cases as these, and also where the fetal head is large, the uterine incision may extend to a serious degree, making subsequent suture very awkward. In the same circumstances one may tear into the greatly dilated veins of the broad ligament, with resultant furious hæmorrhage.

A very interesting error one can make is, in a case where labour is well advanced and the cervix is almost fully dilated, to mistake the posterior lip of the cervix for the lower margin of the uterine incision. This may sound absurd and appear to justify censure for gross carclessness, but it is easy to do. It is a recognized danger and is described in Marshall's monograph on lower segment Cæsarean section.

Placenta prævia is often conceded as an indication for doing a classical section, even by those who admit the superiority of the more modern operation. With this I cannot agree. If the lower segment method is safer for cases, say, of disproportion, it is more so for placenta prævia cases, since these patients have usually had one, and often more than one vaginal examination before they reach the theatre table and the risk of infection is correspondingly increased. What is the objection to the lower segment operation in placenta prævia? Simply that if the placenta is located on the anterior wall one will encounter severe hæmorrhage in cutting through it. But surely the same situation, i.e., the placenta underlying the uterine incision, is just as likely to be met with in classical sections when the placenta is normally situated in the upper segment. While it may be a little more troublesome, it does not greatly increase the difficulty of the operation. Moreover, the lower segment operation has the advantage in those instances of placenta prævia where there is profuse bleeding from the placental site after the placenta has been delivered, since the bleeding point can be accurately distinguished and the hæmorrhage checked by appropriately placed sutures.

The most important advantage of using the lower segment operation is that it permits one to intervene with safety after the patient has been in labour. This means that in cases where, before labour, one is in doubt as to a successful outcome for vaginal delivery, one can give the patient a trial of labour. Since the great majority of such women do deliver themselves vaginally or can be delivered by a relatively easy forceps operation, the result is that one does sewer sections, and many patients are spared abdominal delivery. The obstetrician who does only elective sections (and if he does not practice the lower segment operation all his sections must perforce be elective, the risk of sepsis following classical sections during labour

being prohibitive) may declare that his judgment is so accurate that he can select without error, prior to labour, those cases that will deliver vaginally and those who will not. I wish to state firmly, no matter who he is that makes such an extravagant claim, that he cannot be He will always have a significant percentage of errors. In cases of moderate disproportion it is impossible to distinguish those that will require section and the others that will not. I never cease to be amazed at the degree of disproportion that can be overcome, granted a eo-operative patient and strong uterine contractions. In so many of the most unlikely cases will an uncomplicated vaginal delivery ensue. Of the cases here reported 67 were elective and operated upon before the onset of labour, while in 65 labour had been in progress a variable length of time when the section was performed. In the remaining 26 cases the patient was not in labour but there had been ante-partum hæmorrhage.

ANÆSTHESIA

Ether anæsthesia was used more often than any other anæsthetic agent, in 68 cases, induction being by ethyl chloride or chloroform. Ether is far from being the best anæsthetic but it is often the only one available, when one has to depend on house surgeons or general practitioners to administer the anæsthetic. The particular objection to ether in Cæsarean section is that it makes for poor retraction of the uterine muscle following delivery, so that there is often very free bleeding; one has to introduce one's hand into the upper part of the peritoneal cavity to grasp the utcrus to express the placenta and to apply massage or compression, an undesirable procedure when there is a possibility that the case is infected. In many ways a general ether anæsthetic throws an additional burden on a patient who needs all the energy she can summon for her recovery.

My experience with spinal anæsthesia has been limited; in only five of my cases was it used. Like many obstetricians I have been wary of it because of its condemnation in obstetrics by DeLee, who believed that pregnant women were peculiarly sensitive to spinal anæsthesia and that to it alone could be attributed 1% of maternal deaths from Cæsarean section. But it has been pointed out before now that it is as important to distinguish among the different drugs used for spinal anæsthesia as it is among those used for

inhalation anæsthesia. One would hardly condemn all forms of general anæsthesia because there have been deaths from chloroform. There is good uterine retraction and very little postpartum hæmorrhage with spinal anæsthesia and these advantages make it a valuable method.

A large percentage of my cases were done under infiltration anæsthesia. The actual number was 64, or 40%. The drug used was novocaine 0.5% and between 250 and 300 e.e. was the amount usually required. In many respects this is the ideal mode of anæsthesia for Cæsarean section. Certainly no death due to its use has ever been reported. The uterine retraction which occurs is most striking, there is very little blood loss, often as little as 2 to - 4 ounces, and the placenta separates without delay so that it can be withdrawn by steady traction on the umbilical cord. It is thus the method of choice if the patient has already suffered from blood loss. There is never any difficulty in resuseitating the fetus, which usually cries as soon as the head is delivered. The postoperative course is undisturbed by any complications due to the anæsthetic, there is usually no vomiting and therefore no strain put on the sutures. With its use one is assured that no additional handieap has been imposed on the patient's recovery. It is the method of ehoice in eardine disease, in eases where the patient comes to operation tired out due to neglect in a long drawn-out labour, in diabetes and in eclampsia. A diabetie patient can have her usual, breakfast, go up to the theatre an hour or two later, be delivered under infiltration anæsthesia, then be returned to the ward to have her usual dose of insulin followed by lunch, with no untoward disturbance. In eclampsia, I am sure that a good part of the extremely high mortality associated with Cæsarean section for that condition can be aseribed to the use of general anæsthesia. It is important to realize, of course, that in very few eases of eclampsia is a Casarean section indicated, and I intend to discuss these indications later, but if an operation has to be done, local anæsthesia is the only method to be considered.

Local is not a suitable form of anasthesia for all patients. One would not select it where any additional intra-abdominal procedure is contemplated, such as removal of fibroids or ovarian cysts. It is possible to ligate the tubes under local auxsthesia after first infiltrating between the layers of the mesosalpiex, or alternatively the patient can be given pentothal a minute or two before the sterilization is commenced. In the case of a very nervous. apprehensive patient one would naturally consider some other form of anæsthesia, although it is surprising how well behaved most women are when they are told beforehand the advantages for themselves and their baby from hav-Just before the ing a local anæsthetic. operation is commenced one can administer morphine gr. 1/6 or omnopon gr. 1/3. I have had good success with demerol 100 mgm. combined with seopolamine gr. 1/150 given 45 minutes preoperatively, and another 100 mgm. demerol with seopolamine gr. 1/450 administered as the operation is commenced. Some patients will remain asleep almost throughout the operation and have no recollection of it afterwards under this sedation.

The operation takes a rather longer time (usually an hour or slightly less, I find, under local anæsthesia than when other methods are employed and of course one must exercise the utmost gentleness. It entails greater strain on the operator but this is well worthwhile

More recently I have had the opportunity of doing a group of sections, 18 in number, under eyclopropane anæsthesia. It has no depressing effect on the patient, there is excellent uterme retraction and not a great deal of blood loss. The high percentage of oxygen given with the gas means that the fetus is generally in good condition. Despite this theoretical considera tion there are occasions when the ierus seems adversely affected and I had one case where the fetus was stillborn after an elective opera tion when there had been no undue difficulty in delivery. It appears that pituitrin shock is greatly accentuated when it occurs under eyelo propane anæsthesia and may cause a fatality Therefore one should use only pattern or preferably ergometrine, as an oxytoxic agent when using this form of anæsthesia.

INDICATIONS

When we come to consider the indications for Casarcan section in this group of cases, we find, as is to be expected, that more were done for disproportion than for any other single cause. The total number in which this was the indication was 60. Of these, 34 were performed after a trial labour and 26 were done as

local anæsthesia, with survival of the mother in both instances. One fetus was stillborn.

Accidental hæmorrhage is another condition which can almost always be safely dealt with by measures which result in vaginal delivery, and so in only 2 cases of this series was Cæsarean section selected as the mode of delivery; in one because the fetus was still alive despite the classical picture of combined concealed and revealed hæmorrhage. Vaginal delivery would have resulted in a stillbirth, whereas actually the baby survived. In the other case the cervix was long and narrow, external bleeding was continuous and profuse, and the patient was badly shocked. She survived a classical section done under local anæsthesia.

In 26 cases placenta prævia was the indication for Cæsarean section. In 16 of these the placenta covered completely the internal os and this type of case does not need further discussion. No other method of delivery ought to be considered. In regard to the marginal variety, the more experience I have of these, the oftener am I inclined to select section as the method of delivery. There was a time when I prided myself that if I could feel even the smallest area of membrane at the os, I could terminate the case vaginally with success as far as the mother was concerned but I found I had too many stillbirths. One can never be sure of the outcome. The case may be one of marginal placenta prævia in a multipara, in active labour with the cervix dilating well, when the only treatment used is rupture of the membranes and the baby is born only a few hours later, yet may be stillborn. If the bleeding is profuse, if the cervix is undilated, if the patient is not in labour, if the baby is particularly badly wanted, I therefore have no hesitation in doing a section for this type of case. In 2 instances section was performed for lateral placenta prævia, but in each there was an additional complicating feature; in one, a cord presentation, in the other a transverse lie.

Uterine inertia, though such a trying condition, both for mother and obstetrician, is usually best managed by patience and careful attention to details in the conduct of the first stage of labour, but where other factors have as well to be considered section may be a wise procedure. In 10 of my patients inertia was the indication for operation. In 2 of these there was a degree of disproportion present

which could have been overcome by the development of strong contractions but which, in their absence, sufficed to prevent the passage of the head through the brim. In another instance the patient had already had one Casarean section. But in most of this group operation was resorted to because the patient was advanced in years (the ages ranging from 39 to 44) and was of low fertility (married from 6 to 18 years with no previous pregnancies).

Akin to this type of patient are those. 5 in number, on whom Cæsarean section was done solely because of an unfortunate obstetric history of repeated stillbirths or stillbirth with advanced years. In such cases one should not take any avoidable risk with the fetus.

Malpresentation of the fetus constituted the indication for section in 19 cases, but in many of these there was some additional complication which lent weight to the decision to adopt operative delivery, for example, a bad obstetric history, contracted pelvis, previous Cæsarcan section or low fertility, and, in the case of oblique lie, placenta prævia or pelvic tumour. There were 7 cases of breech presentation, 7 of oblique lie, 2 of brow, 2 of face, and 1 of posterior parietal presentation.

There remains a group of miscellaneous conditions for which Cæsarean section was done in only one or two instances in the present These comprise such conditions as: series. diabetes (2 cases); tonic uterine contraction, previous rupture of the symphysis pubis, dystrophia dystocia, moribund patient, cord presentation and cord prolapse. The latter may appear somewhat radical, but there is a growing opinion among obstetricians that Cæsarean section is justifiable in some cases. The management of prolapsed cord is almost invariably attended by a high fetal mortality, especially in those cases in which the cervix is only beginning to dilate. If other conditions are favourable and if the delay in the patient reaching the theatre table is very short, one can prevent a number of stillbirths by performing section.

This discussion makes no claim to be a complete statement of the factors involved in the selection of Cæsarean section as a mode of delivery. Obviously a topic of such major importance cannot be adequately covered in a single article. I submit the above remarks simply as an outline of the cases within my

personal experience together with some of the conclusions for which they have formed the basis.

RÉSUMÉ

Réflexions basées sur l'expérience de 158 cas de césariennes en 6 ans. Pas plus de 4% des parturientes devraient avoir des césariennes. La mortalité mater-nelle varie de 1 à 5%. Cette opération limite les naissances subséquentes à 2 ou 3 enfants. Le procédé de choix est la section du segment inférieur de l'utérus, même au cas d'un placenta prævia, et le mode d'anesthésie le plus sûr semble être l'infiltrationnovocainique. L'anesthésic générale sera joutée s'il y a lieu de faire d'autres opérations concomitantes. Les principales indications de la césarienne sont la disproportion cranio pelvicnne, une cesarienne antéricurc, une mauvaise présentation, certains placenta prævia, les toxémies, les tumeurs pelviennes et certains cas d'inertie utérine. Toutes ces indications générales sont affaire d'interprétation et de circonstances JEAN SAUCIER particulières.

SARCOIDOSIS®

Adrian Anglin, M.D.

Toronto, Ont.

THE modern concept of sarcoidosis is that it is a systemic disease in which many tissues, or any tissue, may be involved. Commonly affected sites are the skin, lymph nodes and lungs, but the lesion has been found in the bones of the hands and feet, in the mueosa of the mouth, nose and throat, in the tonsils, in the breast, in the wall of the gastro-intestinal tract, in the salivary glands, eyes, liver, spleen, kidneys, testicle, skeletal muscles, pitnitary gland, central nervous system and heart.

The condition has been variously referred to in the literature as Boeck's sarcoid, Besnier-Boeck's disease, Schannaun's disease and benign lymphogranulomatosis.

ETIOLOGY

The etiology of the disease is obscure, and its nature is disputed. David Reisuer¹ in an exhaustive review of 35 cases stresses the not infrequent occurrence of frank pulmonary tuberculosis as a late stage in sarcoid of the lung, and on this and other evidence, bases his suggestion that the disease is of tuberculous origin. Boeck² found a few acid-fast bacilli in a nodule from the nasal mucosa of one of his patients and inoculation of this material into a gninea pig produced a very chronic form of tuberculosis.

From St. Michael's Hospital, Toronto, Ont.

He concludes, therefore, that sarcoidosis is an atypical form of tuberculosis. Sehaumann² is of the same opinion, believing that the etiologieal agent is probably a benign form of the bovine bacillus. Tiee and Sweany' state that many eases which have been followed for years have shown a gradual change from the "sarcoid state" to some form of tuberculosis showing both easeation and tuberele bacilli, and several writers refer to the disease as non-easeating tubereulosis. However, the results obtained by the majority of workers eoineide with those of Harrell' who, in a study of eleven eases, failed to demonstrate tuberele bacilli by microscopical examination, eulthral methods, or by incentation of gninea pigs, rabbits, miee, rats, and fowl. He suggests that sareoidosis may represent a reaction to the lipoid fraction of a variety of organisms. Many continue to believe, however, that it is a specific disease due to an unknown agent.

PATHOLOGY

Pathologically, sarcoidosis is characterized by the appearance in the affected tissues of cell aggregations which resemble miliary tubercles, but which differ from these in that the giant cells tend to be very large and vacuolated, the peripheral zone of lymphocytes being absent or poorly developed. The nodule is very sharply delimited and, it is very important to note, caseous necrosis does not occur and tubercle bacilli cannot be found. With aging of the lesion the giant cells disappear and the nodule-are eventually replaced by fibrous tissue.

Because of the presence of tissue changes of this type many clinically diverse conditions are now described as sarcoidosis. These are multiple benign sarcoids, lupus pernio, benign lymphogranulomatosis, uveoparotitis, regional ileitis, atypical miliary tuberculosis and atypical tuberculous splenomegaly.

CLINICAL FRATURES

Sareoidosis occurs chiefly in young adults. It runs an extremely chronic, relatively apyrexial course, usually uninfluenced by any treatment, although spontaneous regression frequently occurs and many cases have been known to progress to apparent cure. Constitutional symptoms are rarely severe, but weakness, loss of weight, joint and muscle pains, cough, shortness of breath, and pain in the chest have been noted. The eye may be involved, leading to partial or even, in rare cases, complete blindness. Con-

^{*} Read before the Ontario Medical Association on May 23, 1946.

junctivitis may occur with keratitis, iridocyclitis or more extensive involvement of the uveal tract. Parotitis may be associated with salivary and lachrymal changes to produce Mickuliez's syndrome. Considerable deformity of fingers and toes may be found in those patients whose bones are affected. Extensive infiltrations of the lungs may be of serious import and may eventually lead to death from cardiac failure. Cardiac symptoms may also be due to direct involvement of the myocardium (Salvesen⁶).

LABORATORY FINDINGS

A finding which appears to be fairly constant in the active stage of the disease is an increase in the globulin content of the blood, leading to hyperprotinemia and a reversal in the albuminglobulin ratio. In 10 of Harrell's 11 cases the serum globulin varies between 3.9 and 6.0 gm. per 100 c.c. (normal 1.2 to 2.8 gm.). Similar findings have been recorded by other writers. Harrell also reports an increase in blood phosphatase in all seven cases in which this estimation was done and some degree of bilirubin retention in the four cases in which this was studied.

The blood usually shows an increase in the sedimentation rate. Both monocytosis and eosin-billia have been found and there is a tendency towards neutropenia. In Reisner's series monocytosi was present in 50%, eosinophilia in 25%, and leutopenia in 33%. The sedimentation rate was increased in most cases.

Radiology.—Radiologically the picture is that of bronchial glandular enlargement occurring alone or in association with lung infiltration of two general types. The hilar glands are usually found enlarged to some degree, the enlargement resulting in heavy lobulated lung roots.

The first type of parenehymal involvement is characterized by numerous small rounded shadows of about match-head size, more sparsely distributed than is the case in miliary tuberculosis and of slightly greater size and density. They may be as numerous at the periphery as elsewhere and are not related to the larger divisions of the bronchial tree in distribution. These densities usually remain discrete but may be indered ill defined when, by pressure on broncal structures, small at electatic areas are protifices nodules may occur in any portion are or may be uniformly distributed

both lungs. They presumably repre-

sent the development of sarcoid tissue in the lymphoid deposits of the lung parenchyma. These lymphoid deposits have been shown to be of uneven distribution and irregular size.

The second form of parenehymal lung involvement results in the production of a coarse network or reticulum of linear shadows, unbranched, dense, present in undiminished size in the periphery, unrelated to the course of pulmonary vessels and converging to the hilum. Associated with these shadows may be seen a very faintly stippled appearance similar to that which occurs in congestive heart failure. Kerley believes that the stippling and linear shadow formation are due to congested or blocked lymphatics which when viewed longitudinally present the appearance of striæ and which, when seen end on, form a nodular pattern.

There is, strictly speaking, no characteristic or diagnostic change in sarcoidosis. Reisner states that in three of his 35 cases the radiological appearance was in no way different in type or distribution from that of pulmonary tuberculosis of productive and fibrotic type. In two of his cases the appearance was that of densities resembling pneumonic consolidations. According to Snapper⁶ a diagnosis of sarcoidosis should be entertained when the x-ray picture of miliary tuberculosis is found in the lungs of a patient who is apyrexial and whose general health is not impaired.

DIAGNOSIS

The diagnosis, in the absence of proof by biopsy, must rest on the clinical picture as a whole. When the classical picture of sarcoid skin lesions with bone changes and involvement of viscera, or visceral lesions with eye and parotid involvement is found, the diagnosis may be made in some cases with fair confidence. In other cases where visceral involvement only is found, or glandular change is observed, diagnosis on purely clinical grounds may be impossible.

Sarcoidosis must be differentiated most commonly from tuberculosis of the lung, glandular tuberculosis, hæmatogenous tuberculosis, Banti's disease, Hodgkin's disease, and other diseases of the lymphoblastoma group.

Differentiation from parenchymal tuberculosis may be difficult or impossible. In the four cases presented in this paper two had, at one time or another, been considered to have pulmonary

tuberculosis. The most important distinguishing points are: the failure to find tubercle bacilli, the tuberculin anergy which occurs in 40 to 50% of all patients suffering from sarcoidosis, the extremely chronic course with periods of remission from symptoms, eertain blood changes, notably the reversal in the albumin-globulin ratio, and moderate cosmophilia. Finally, the radiological findings as earlier described may differ in important respects from those of tuberculosis.

The author has not seen any case in which splenomegaly has been demonstrable. According to Reisner these eases in which splenomegaly is the dominant clinical feature may be confused with Banti's disease. The co-existence of lesions in other organs not characteristically involved in Banti's disease may assist in differentiation. As in other eases, however, biopsy may be necessary to establish the true diagnosis.

In one of our cases, the original diagnosis nine years ago was Hodgkin's disease. On clinical and roentgenographic evidence alone differentiation may be extremely difficult. As a rule in Hodgkin's disease and other diseases of the lymphoblastoma group constitutional disturbance is more severe and the downward progress of the untreated patient uninterrupted, whereas in sarcoid, remissions are common. It must be remembered, however, that sareoidosis may on oceasion produce severe constitutional disturbance and, that, on the other hand, extremely chronie eases of Hodgkin's disease have been Generalized glandular enlargement may oecur in both diseases but much more frequently and usually to a much more pronounced degree in Hodgkin's. Mediastinal gland enlargement, as observed radiologically, is com-Generally speaking mon to both conditions. however there are certain differences in character and distribution of glandular enlargement. In Hodgkin's disease the paratracheal glands are usually first involved, especially the right, with subsequent involvement of the tracheo-bronchial glands at the bifurcation with later involvement of the bronehial group. In sarcoidosis the bronchial group is usually predominantly and symmetrically involved. Finally a test dose of irradiation will radically affect the glandular enlargement of the leukamias, of lymphosarcoma and of Hodgkin's disease but will have little or no effect on the enlarged glands of sarcoidosis.

Prognosis

In considering prognosis Reisner states that "there are no means of determining the course of the disease in the individual case except by actual observation of its evolution". Approximately one-third of his cases showed a clearly regressive course with apparent recovery, in one-third the disease was either stationary or periods of remission alternated with exacerbations and in the remaining third the course was entirely progressive. Seven patients of this series died while under observation.

Snapper considers that the prognosis, on the whole, is favourable. In his series of 13 cases one patient only died as a result of right heart failure produced by fibrotic change in a lung affected by sareoidosis. Three of his patients were under observation for 8, 18 and 20 years The ultimate prognosis must respectively. depend on the localization of the disease and the degree to which function in the affected organ is permanently impaired. Thus sareoidosis may directly invade the heart muscle, as in Cotter's case, resulting in early death, or the central nervous system, as in three cases recently reported by Linnell9 at the Toronto General Hospital, resulting in an inevitably fatal termination; or it may confine itself to superficial lymph glands, or tonsil and cervical gland as in the second case reported here, or some similarly innocuous situation, and little influence the patient's expectation of life.

TREATMENT

No specific therapy has been discovered for the treatment of sarcoidosis, although arsenic has appeared to benefit some patients. Recently Ost, 10 after a failure with chrysotherapy terisalbine), and mapharsen combined with x-ray, observed complete recession of a skin sarcoid following the administration of neoarsphenamine. Many other methods of treatment have heen attempted, but with little success. Among these are the other arsenicals, massive doses of vitamin C, chaulmoogra oil, gold salts, tuberculin, iodides, hyperthermia, and various radiations. With the possible exception of arsenic, none of these has proved to be of any value.

The writer's only observation concerning treatment is that in three cases presented here very striking symptomatic improvement took place after a prolonged rest in bed. In one case each of her three periods of remission of symptoms occurred after periods of four to six weeks of bed rest. In each instance the remission lasted for several months.

Pulmonary sarcoidosis.—E.T., a student nurse aged 20, was admitted to St. Michael's Hospital on October 3, 1943, complaining of persistent productive cough and loss of weight. Since childhood she had suffered from frequent colds and cough with little sputum. For about a year the cough had been severe with two ounces of greyish sputum daily. In this year she had lost about six pounds in weight. In September, 1942, ou entering the School of Nursing, x-ray of the chest showed heavy bronchial markings, and a radiological diagnosis by Dr. E. H. Shannou of chronic non-tuberculous infection was At this time the intracutaneous tuberculin test with 1/20 mgm. O.T. was positive. In March, 1943, because of a presumptive clinical diagnosis of bronchiectasis, bronchograms were made and revealed well marked saccular and cylindrical bronchiectasis involving the left lower lobe. Lobectomy was advised. mission to hospital her temperature, pulse and respira-tions were normal. The blood pressure was 110/70. The hemoglobin was 80% and the leucocyte count was 8,000. Tubercle bacilli could not be found in the sputum and the urine was normal. On physical examination slight dullness was found ou percussion over the lower lobe of the left lung, and in this area patches of bronchial breathing and scattered râles were heard. There were no other abnormal findings. The tuberculin test with 1/20 mgm. O.T. was now negative.

On October 4, the lower lobe of the left lung was removed by Dr. W. G. Carscadden. At operation it was noted that there were many firm circumscribed nodules scattered over the surface of the excised lobe. Similar nodules were observed on the under surface of the upper

A "quick section" of a peripheral nodule showed numerous very large giant cells of foreign-body type surrounded by aggregations of epithelioid cells. Absence of caseation was noted, but a tentative diagnosis of tuberculosis was made. Gross examination of the excised specimen showed a moderate degree of fusiform dilatation of the bronchi and bronchioles with fibrous thickening of their walls. At the periphery of the lobe, immediately under the pleura, were several scattered, greysh yellow, moderately firm, circumscribed areas measuring 1 cm. to 2 cm. in diameter. Radiating out from the root of the lobe, between the thickened bronchioles, were numerous, in places confluent, firm greyishyellow, sharply circumscribed nodules, varying in diameter up to 0.5 cm. The intervening lung tissue appeared normal. On examination of paraffin section a diagnosis of sarcoidosis was made.

Many sections were examined for tubercle bacilli with negative results, and a guinea pig heavily inoculated with tissue from the pulmonary lesions failed to develop tuberculosis. The final diagnosis was pulmonary sar-

coidosis and bronchiectasis.

The patient's postoperative course was satisfactory and she was discharged from hospital in good physical condition on November 10. Relevant laboratory data are summarized in Table I. X-ray examinations of the bones of the hands and feet, early-in December, showed no abnormality. On December 16 a tuberculin test with 1 mgm. O.T. was again negative. At the time of writing (1946) the patient is in good health, is working full time, and except for a slight cough, is free of symptoms. Her reaction to tuberculin remains negative to 1 mgm. O.T.

CASE 2

Sarcoidosis of the lymph nodes and tonsils.-R.R., a male patient, aged 41, consulted Dr. Harris McPhedran in March, 1931, complaining of swellings in his neck, which had been present he thought, for about six months. They had seemed to occur quite suddenly at the time and to have receded to some degree subsequently.

On examination the patient appeared to be in good general health. The tonsils were swollen and appeared general health. The tonsis were swoned and appeared to be inflamed. The pharynx was reddened and muco-pus in abundance was observed. There was an appreciable degree of swelling of the lymph glands in the neck, the axillæ and the groin, the glands varying in size up to that of a heu's egg. Urinalysis was negative. Routiue blood examination showed no abnormality. The Wassermann was negative.

On March 17, a cervical lymph gland was excised and the pathologist reported that the picture was that of atypical tuberculosis in a lymph gland. On March 28, tonsillectomy was carried out and the tonsils examined pathologically. The diagnosis was chronic tonsillitis showing foreign body giant cell reaction. Guinea pigs and fowl inoculated with tissue from the lymph node and tonsil failed to develop tuberculosis.

On re-examination of the section in this case, in 1943, the pathologist recognized that the lesions in the lymph node and tonsils were typically sarcoid in type. This patient was, in December, 1943, alive and well.

CASE 3

M.W., fcmale, aged 35 years, was admitted to St. Michael's Hospital on October 28, 1945. She complained of persistent cough with sputum of two years' duration. dyspnæa for two years, fatigue and weakness for eight years and intermittent loss of weight for six years.

In 1937, she suffered from severe pain in the upper chest anteriorly. After x-ray examination of the chest she was told she had Hodgkin's disease and a course of radio therapy was administered. She had no knowledge of any superficial glandular enlargement at this

In 1939, she was admitted to another hospital where it was noted that she had generalized enlargement of the superficial lymph glands. An enlarged gland was removed from the posterior cervical region for biopsy and the patient was informed that she had glandular tuberculosis. After eight weeks in hospital she returned home, feeling well. She continued to feel well for about a year. In the summer of 1943, she complained of per-

TABLE I.

			_•				
	Date-1943						
	Oct. 4	Oct. 6	Oct. 13	Oct. 21	Nov. 10	Dec. 3	
Serum protein gm. per 100 c.c.	••	6.0	••	٠	8.5	9.4 5,2	
Serum albumin gm. per 100 c.c. Serum globulin gm. per 100 c.c.	• •	$\begin{array}{c} 3.2 \\ 2.7 \end{array}$	• •	• •	$\frac{4.2}{4.2}$	4.2	
Serum calcium mgm, per 100 c.c.	• •		••	••		12.2	
Phosphatase, King-Armstrong units		•••	-:-	-:-	• •	5.8 8 1 .5	
Hæmoglobin %. Leucocyte count	\$0.0 \$,000	60.0 18.000	$70.0 \\ 24,000$	75.0	••	10,300	
Neutrophies	0,000	13,000	24,000	72.5	••	56.5	
Lymphocytes			• •	13.5	• •	29.0 6.5	
Monocytes	••	• •	• •	8.5 5.5	• •	8.0	
Sedimentation rate, Walton tube, mm. in 1 hour	• •	• •	• • • • • • • • • • • • • • • • • • • •	0.0	• •	15	

sistent pain in the chest. This pain was continuous, aching in character and situated behind the lower end of the sternum. In September, 1943, following a severe "cold" she became acutely ill and was told that she had pneumonia involving the lower lobe of the left lung. Since then her cough has persisted, has been severe at times and is sometimes productive of green or yellow sputum.

In the spring of 1944 she experienced severe pain low in the left axilla and was told that she had pleurisy. In March, 1945, she was seized with an extremely severe pain in the left lower chest, accompanied by dyspnoxa and dizziness. She fell across a table and was unable to move until she was given an injection. She described the pain as being "as though something had become twisted". The pain subsided gradually over a period

of five or six days.

At the time of admission to St. Michael's Hospital the patient was pale, not apparently acutely ill but slightly short of breath. Her temperature and pulse were normal, her respirations slightly increased. Her state of nutrition was fairly good. There was slight clubbing of her fingers. On examination of the chest there was found a slight thickening and roughening of the seventh and eighth ribs over a small area in the posterior axillary line. There was diminution of resonance over the left upper lobe anteriorly and posteriorly. Expiratory and inspiratory rhonchi were heard through-out the lungs on both sides. The liver was barely palpable and was not tender. The spleen was not palpable. There was generalized enlargement of the superficial lymph glands. These glands were firm, discrete, not tender and not attached to skin or underlying structures.

During the patient's stay in hospital her temperature was normal, except for an occasional rise to 99°. Her pulse ranged between 80 and 100, and her respirations

between 18 and 24.

The laboratory findings were as follows: hæmoglobin 69%; red blood cells 4,000,000; white blood cells 13,800. Two blood films showed no abnormality other than a slight microcytic anæmia. The differential count was normal. The sedimentation rate was 21 mgm. in I hour (Walton). The tuberculin reaction was negative with 1/20 mgm. O.T. and was very slightly positive to 1 mgm. Urinalysis on repeated specimens showed no abnormality. The sputum was negative for B. tuberculosis.

Certain biochemical estimations were made with the Certain biochemical estimations were made with the following results: calcium 9.7 mgm. (normal), phosphorus 2.2 mgm. (slightly low), alkaline phosphatase 5.7 units, and on second occasion 6.9 units (both normal). On October 29 the scrum protein was 5,600, which is slightly low. On November 7, the scrum protein estimation was 6,060, the scrum albumen 3,952 and the scrum globulin 2,108. These estimations are all slightly low but present a normal albumen-globulin ratio. Bilirubin estimations were direct-negative, indirect 1.3, which is slightly higher than normal.

which is slightly higher than normal.

On October 28, an x-ray of the chest was made and was reported as follows: "The lung roots are rather heavy and moderately broad. The left contains a few small ealcified glands. The left lung shows slight fibrosis along the lines of the first interspace trunks with a minute fibrosed nodule at the second rib anteriorly. There is partial collapse of the right upper lobe. There is infiltration or fibrosis opposite the first and second interspace extending along the linear markings well out to the periphery. It appears to be of old tuberculous character. Elsewhere the lung appears clear. The sixth, seventh and eighth ribs have evidentally been fractured and have healed by bony union."

On October 30, x-rays were made of both hands and feet. They presented a normal appearance. On October 31, the right epitrochlear gland was removed for examination. The microscopic diagnosis was sarcoidosis of lymph node. On November 7, a further biopsy was made of a portion of the seventh rib. This was found to be a periosteal fibrous nodule. There was no evidence of sarcoid tissue.

CASE 4

A.C., A white female, aged 66 years. was admitted to St. Michael's Hospital on February 1, 1946. She complained of non-productive cough for five days, general malaise, weakness, and night sweats for the same period.

In November, 1936, she was admitted to hospital with neuroparalytic keratitis of the left eye. The left eyelid was sutured. She was afebrile. Examination of her chest was reported normal. She was again in hospital from March 27, 1940 to April 30, 1940, complaining of a "chest cold" for one week with chills, non-productive cough, general malaise and weakness. At this time examination of her chest revealed diminished movement on the left, normal resonance throughout, reduced air entry in the left upper lobe with râles in the same sitnation.

There was no history of cough prior to the onset of this illness, no hæmoptysis, no chest pain, and no night sweats. She had lost some weight. Chest x-rays showed the trachea shifted to the left. There was an irregular density involving the left chest from the apex to the level of the eighth rib posteriorly, produced by dense fibrosis, the appearance being very suggestive of tuberculous disease.

Wassermann and Kahn reactions were negative. Blood culture was sterile. The sedimentation rate was 12 mm. in one honr. Eleven specimens of sputum were negative for tuberculosis. She was persistently febrile throughout her stay in bospital, her temperature varying from 99 to 101°. A diagnosis of pulmonary tuberculosis of the chronic fibrosing type was made and the patient was moved to the Mountain Sanatorium. Hamilton, on April 30, 1940. She remained there until October, 1940. During this period all sputums by direct examination, on culture and after gastric lavage, were negative. At the time of her discharge she had no cough or sputum and had gained twenty pounds in weight.

On physical examination, during her recent admission, it was found that the patient was markedly wasted. She had bilateral keratitis with cataract formation. In the chest bronchial breathing was heard over both upper lobes and there were râles at both apices. There were no significantly enlarged lymph glands. Physical examination otherwise was essentially negative.

At the time of admission her temperature was 101°, and continued to range from 99 to 101° throughout her stay in hospital. Her pulse varied from 80 to 100, her respirations from 20 to 24. The hamoglobin was 73%. The leucocyte count was found on different occasions to vary from 6,450 to 11,650. The differential count was as follows: neutrophiles 58%, lymphocytes 26%, monocytes 7%, and cosinophiles 9%. The red cells cloved no almormality. The princ was normal. The showed no abnormality. The urine was normal. The Widal reaction was negative for B. typhosus, paratyphosus A. and B., and B. abortus. Blood culture was sterile on two occasions. Urine culture was negative. Her sedimentation rate was 30 mm. in one hour. Tuberele bacilli were not found in one sperimen obtained by the direct method or in two specimens obtained by gastric lavage. Serum protein estimations done on four occasions showed the total to vary from 6,620 to 8,130. On all occasions there was a reversal of the A.G. ratio, the most striking being, alloumen 1,650 against globulin 4,970.

X-ray of the chest revealed no appreciable change as compared with the 1940 and subsequent pictures. X-rays of the hands showed some rarefaction, with small cyst-like areas in the heads of the metatarsal bones. These findings, while not sufficiently clear-cut to be diagnostic, were highly suggestive of sarcoid bone

Throughout her course in hospital the patient insisted that she felt well. Her appetite was good. She had no special symptoms. Three courses of penicillin, of 3.5, and S days' duration, did not influence the clinical picture to the slightest degree. No other treatment was attempted.

DISCUSSION

In the first report a ease is presented in some detail in which the diagnosis could not have been made except by direct examination of the viseus or viscera involved. The second ease, showing sarcoid nodules in the lymph nodes and tonsils, is of the type described by Schaumann as lymphogranulomatosis benigna. In the third ease the diagnosis was suggested by the history, supported by physical and radiological examination, and finally confirmed by examination of an excised gland.

The fourth is presented as one in which the diagnosis of sarcoidosis has not been finally proved but which, in my opinion, presents strong clinical evidence for such a diagnosis. The most important features are the long drawn out ehronic course with regression, the early history of keratitis, the unusual lung infiltrations, thefailure at any time to find tubercle bacilli in the sputum by direct examination, on culture or by guinea pig inoculation, and finally the negative tuberculin reaction. Findings of some interest but of lesser importance are the increased sedimentation rate, the moderate eosinophilia and the persistent reversal in the albumen-globulin ratio of the blood.

The four cases reported emphasize the chronic character of sarcoidosis and the tendency to spontaneous regression. In the first case, three years after the diagnosis was made, the patient is alive, well, working, and exhibits no signs or symptoms of the disease nor has any of the previously discussed biochemical changes; in the second, twelve years have elapsed since diagnosis and he, also, is alive and well; in the third, nine years have elapsed since the mistaken diagnosis of Hodgkin's disease was made and, though the patient is not at the present time free of symptoms, she has had intervals when symptoms have been absent, and her condition has not appreciably worsened over the whole period; in the fourth case ten years have elapsed since the kcratitis was recognized and, while the patient is not well, her general condition has deteriorated very little despite the fact that for at least fifteen weeks she had had persistent high fever, the daily average range of temperature being from 99 to 102 degrees.

Opinion is divided as to whether sareoidosis is a disease due to an unknown agent (Snapper, Longcope¹²), a reaction to the lipoid fraction of a variety of organisms (Harrell) or a peculiar

form of tubereulosis (Boeck, Schaumanu, Klemperer, 13 Pinner, 14 Reisner, Tice and Sweany) Belief in the tubereulous nature of the disease is based on the superficial resemblance of the tissue changes to those found in tuberculosis. the infrequent finding of tubercle bacilli in sareoid lesions, and the oceasional finding of typical sarcoid nodules and typical caseating tubercles at one time or at different times in the same case. In opposition to this view it can be argued that the great majority of workers have failed to demonstrate tuberele bacilli in sarcoidosis, and that the tuberculin test is usually negative in this condition. In regarding this argument an analogy might be madé with silicosis which produces a similar mass effect in the lung through its slowly destructive action by a ehronie inflammatory process. In this disease. a large proportion of patients die ultimately from pulmonary tuberculosis. It might be argued that this is evidence of the tuberculons etiology of silicosis which would, of course, be nonsense.

In considering the tuberculin anergy found by all workers in most of these cases it is of interest to note that in the first case of pulmonary sareoidosis reported here the tuberculin test was strongly positive with 1/20 mgm. O.T. when the patient entered the School of Nursing, but one year later, when the diagnosis of sarcoidosis was made the test was negative with 1/20-mgm. O.T. and with 1 mgm. O.T. It is also of interest that Lemming¹⁵ could not produce tuberculin sensitivity in patients with sarcoidosis even by injection of B.C.G. vaccine. This certainly suggests that patients with sarcoidosis have a high degree of immunity to tuberculosis.

I am indebted to Dr. William Magner for the pathological reports in the two cases presented, to Dr. Harris McPhedran for permission to publish the second case, and to Dr. J. M. Dunsmore for his assistance with the radiological description.

REFERENCES

- REISNER, D.: Am. Rev. Tub., 49: 4, 1944. BOECK, C.: J. Cutan. & Genito-urin. Dis., 17: 543, 1899. SCHAUMANN, J.: Ann. de Dermatol. et Syph., 121: 707.
- 1916.
 4. TICE, F. AND SWEANT, H. C.: Fatal case of Besnier-Boeck-Schaumann disease with autopsy findings, Ann. Int. Med., 15: 597. 1941.
 5. HARRELL G. T. AND FISHER, S.: J. Clin. Inv., 18: 687.

- 1939.
 6. SALVESEN: Acta. Med. Scand., 90: 189, 1937.
 7. KERLEY, P.: Textbook of X-ray Diagnosis by British Authors, H. K. Lewis, London, 1938, 1939.
 8. SNAPPER, I. AND POMPEN, A. W. M.: Pseudo-Tuberculosis in Man, Haarlem, de Erven F. Bohn, 1938.
 9. LINNELL, E.: Personal Communication.
 10. OST, N. A.: Canad. M. A. J., 54: 272, 1946.
 11. COTTEP, E. F.: Arch. Int. Mcd., 64: 286, 1939.
 12. LONGCOPE, W. T.: J. Am. M. Ass., 117: 1321, 1941.
 13. KLEMPERER, P.: Proc. of Tumour Semlnar Am. Soc. Cilin. Path., Philadelphia, June 7, 1942.
 14. PINNER, M.: Am. Rev. Tub., 37: 690, 1938.
 15. LEMING, R.: Acta. Med. Scand., 103: 400, 18

RÉSUMÉ

La sarcoidose est un état chronique ayant tendance à régresser spontanément. On a cru qu'il s'agissait d'une forme bénique de tuberculose: concomitance occasionnelle des deux et ressemblance morphologique des lésions. Par ailleurs, les malades atteints ont le plus souvent une cutiréaction négative. En réalité, l'étiologie est inconnue. La maladie est favorablement influencée par l'arsenic, la chrysothérapie et les rayons X.

JEAN SAUCIER

EVALUATION OF X-RAY EVIDENCES OF SINUS DISEASE*

Arthur W. Proetz, M.D.

St. Louis, Missouri

ROENTGENOGRAPHIC shadows of the nasal sinuses are more complicated, are crowded into a smaller space and are given to more over-lapping than those of any other region. Their interpretation requires care and time and, to my mind, a constant personal comparison between nose and film.

The nose being essentially a bony region, the roentgenogram is characterized by bone shadows; but at the same time the more delicate, the more recent and hence the more clinically important changes can often be detected only in soft tissue shadows.

If one stops to consider that in the lateral view, for example, the soft parts of the external nose are completely obliterated while the bones stand out delicately and clearly, it becomes readily apparent that soft structures within must be either fairly bulky or of a special character in order to cast shadows with exposures based upon bone densities.

In training oneself to recognize the minor variations which are so important it is only common sense to demand a standard exposure technique, including time, voltage and angulation for each position. Long familiarity with films produced under such conditions alone enables one to detect the minor changes as they occur.

In examining a sinus film one naturally turns first to the bones, their character, their density and their outlines. As just observed, changes in the bone are not the earliest manifestations of most masal diseases; bone changes demonstrated

strable by x-ray are apt to be late. During a given illness, unless one has access to films made of the patient at some previous time under the same relative radiological conditions, one has no way of knowing whether some local density is recent or not. It may be the result of an old periosteal thickening, produced by some infection of ten years ago, which will always remain. We know that maxillary sinuses which have been exenterated at some previous time and are now elinically healthy may cast dense shadows. Density of bone may be due to developmental causes acting in childhood and adolescence, and unrelated to any local nasal affection.

In the diagnosis and examination of fractures roentgenological evidence is usually superior to any other. Its advantages here are too obvious to detain us.

The demonstration of fluid levels in a sinus is dramatic but unfortunately they occur much less frequently than the conditions which can produce them. This is sometimes due to lack of density of some fluids, but is much oftener due to the lack of fluidity, eausing the exudate to adhere to the walls where they accumulate in irregular masses or where they are obscured by the irregularities in the bone itself. Exudates may be stretched along the wall toward the ostium by the action of the cilia still functioning in the cavity. The evacuation of radiopaques in this manner is frequently seen. Fluid levels when seen during acute infections are of interest but add little new information. They are of special value in chronic conditions. notably those arising from infected dental roots in the presence of obstructed ostia which prevent the exudate from escaping and showing itself in the nose.

On the whole roentgenological evidence in acute inflammatory conditions is apt to be either inconclusive or superfluous. An acute infection of such severity as to produce demonstrable changes usually asserts itself vigorously and is located quite definitely by the patient.

As a check after the subsidence of the disease, also, the x-ray is less helpful in the nose than in other locations. If there is density while the patient is ill which clears when he recovers, then we are satisfied: there is no guarantee, however, that small abscesses or infected glands do not persist in the membrane which are a potential source of trouble. On the other hand, if the density persists after

^{*}Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Otolaryngology, Banff, Alberta, June 12, 1946.

rhæic dermatitis. Further questioning revealed the use of a deodorant which had brought on the latest attack. Examination showed some reddening, scaling and slight thickening in the axillæ with similar but clearing changes on the face. Patch tests were positive for her face powder and for the deodorant. Their use was eliminated, two x-ray treatments were given to aid in the resolution of the eczematous changes, the condition cleared rapidly, and no recurrences had appeared up to the time of her last examination nine months later.

CASE 2

A male, aged 33, was referred for treatment of an cruption on the ring finger of five months' duration. Diagnosis, chronic eczema. No definite cause could be determined, although he did come in contact with grease and oils in the workshop. Some improvement was obtained with x-ray therapy. But the lesion would not clear. A ring worn on that finger and removed only during treatment, was transferred to the left hand and in less than a week, a similar eruption appeared on this finger. Patient was sensitive to the metals in his ring. After its removal, the eruption on both hands cleared with a little more radiotherapy, and had remained clear when seen five months later.

CASE 3

A male, aged 30, was referred for x-ray treatment of neurodermatitis of the antero-lateral surface of the left thigh. Duration, eleven months. Treatment with a variety of ointments had produced only oceasional improvement. The lesion measured 6" by 8". The dermatologist noticed that this area was directly beneath the pocket of his trousers, where amongst other things, he had always carried a box of matches. Patch tests with the striking portion of the match box were positive. The causative agent was removed, and the lesion cleared on x-ray therapy, leaving some pigmentation. The last examination two years later still showed the same discoloration, but the leg had remained elear of eruption.

CASE 4

A female, aged 30, was referred for treatment with an intermittent eruption of three months' duration. This usually began on the chin and spread to the cheeks. The eyeluds became very swollen suddenly on three occasions. The history and the appearance of the lesion were suggestive of a contact dermatitis. No new cosmetics, soap, medicine, etc. had been used. Patch tests of nail polish and face powder, and all protein intradermal and scratch tests were negative. As the lesions did not clear completely on ordinary dermatological measures, a small dose of x-rays was administered. Two days later a flare-up occurred, with reddening and weeping of cheeks and chin, and ædema of the eye lids. The radiotherapy was blamed and further treatment was stopped. The skin changes subsided slowly. A second flare-up occurred several days later. The whole history was then reviewed and it was noted that the powder puff, made of some rubber compound had not been tested. A patch test with this produced a very strong positive reaction. When this agent was eliminated, the skin changes cleared.

With the widespread use of sulfonamides, many cases of sulfonamide dermatitis have occurred. Some of these eventually find their way to the radiologist for treatment. Usually there is no difficulty in the diagnosis and management of these cases. But in a few a sensitivity to sunlight has developed and in some is unrecognized so that repeated exposures have resulted in the development of a dermatitis on the face. Some of these patients respond well to x-radiation. But they must be protected

during the period of treatment otherwise failure may result, or a flare-up may be attributed to the injudicious use of x-rays.

ECZEMATOUS AFFLICTIONS OF THE HANDS AND FEET

There is a tendency to label nearly all eczematous involvement of the feet as epidermophytosis or "athlete's foot". If lesions also involve the hands, these are then eonsidered to be "id" reactions. Often these turn out to be cases of severe hyperhidrosis with maceration between the toes, and are usually unsuitable for radiotherapy. Furthermore, straight-forward eases of fungous infection of the feet can be treated by other dermatological means. If secondary eczematization occurs, this may require radiotherapy but with this form of treatment the original fungous infection usually remains unaffected, and the condition will recur later unless proper medical procedures are followed.

Dyshidrotic eezema or pompholyx of the feet or hands or both is another disease entity often mistakenly diagnosed as fungous infection. This is a stubborn condition to treat, showing frequent early recurrence. Repeated irradiation because the first application proved successful in clearing the itch and eruption may lead to eventual overtreatment with disastrous consequences. There appears to be some psychological disturbance present in some of these patients, and some of those seen by us overseas were referred for psychiatric examination. If any such factors can be corrected, there is more hope of achieving a more lasting improvement.

Other pathological conditions such as contact dermatitis, impetiginous dermatitis and neuro-dermatitis of the feet and hands should be recognized as possibilities when a case of "eczema" of these areas is referred for radiotherapy.

CRURAL LESIONS

Very often any lesion involving the crural areas is diagnosed as tinea cruris, particularly if the involvement is fairly sharply eircumscribed. Furthermore, nearly all of these eases are treated without first examining scrapings for fungus, or without taking an adequate history to rule out the presence of other skin disease elsewhere, of which the crural involvement may be only a part. The presence of a lesion on the toes, even if proved of fungons origin, does not necessarily indicate that other lesions on the body are of similar etiology. Quite a few derma-

tological entities may produce eruptions in the erurals, which may or may not be accompanied by similar involvement elsewhere on the body. Some of the crural conditions encountered in our practice overseas were neurodermatitis, chronic patchy eezema, atopic dermatitis, tinea cruris, seborrhæic dermatitis, psoriasis, and contact dermatitis due to overtreatment of other skin diseases.

Strong fungicidal ointments may so aggravate some non-mycotic lesions that a disease which normally might be expected to benefit from x-ray therapy may become more resistant to such treatment. And tinca cruris, mistakenly labelled something else, may be given a prolonged course of radiotherapy with very little benefit to the patient.

CASE 5

A 39-year old male was referred for treatment of a crural lesion which had been thought of as possibly tinea cruris. Six months before, he had developed "athlete's foot" and impetigo of the face, and soon an eruption appeared in the crural areas. The feet and face cleared with treatment but the other lesions remained. The use of Whitfield's ointment made him much worse. Bland ointments then produced a little alleviation of his distress. When seen here, numerous greasy scales were seen in his scalp, some redness and scaling were noted in the sternal area, the intergluteal cleft, and in each crural fold, worse on the left side. A diagnosis of seborrhæie dermatitis was made. Radiotherapy was administered and the lesions responded, but very slowly. However they cleared and had remained clear until examined again nearly two years later.

CASE 6

A male, aged 40, was referred for treatment of a crural lesion diagnosed as eczema. Duration, six weeks. Ointments had produced no improvement. Examination revealed eczematous appearing lesions which showed no clinical resemblance to tinea. X-ray therapy was started. Routine examination of scrapings revealed fungous organisms. Radiotherapy was stopped, and the disease was soon eradicated by proper dermatological treatment.

PLANTAR WARTS, CALLUSES AND CORNS

In my opinion, calluses and corns are problems for the orthopedic surgeon and not for the radiologist. Although it is possible to be temporarily rid of some of these by means of irradiation, the underlying cause, some disturbance in the normal architecture of the foot, is still present, and recurrences are not prevented. Repeated treatments of a callus, mistakenly diagnosed as a plantar wart, have not infrequently resulted in the formation of a painful radiation ulcer. Failures and complications as noted above have often led to condemnation of radiotherapy as a method of treatment of plantar warts.

Further examples could be given to illustrate the main point of this paper but time does not permit. One thing however I would like to add. It is very important to assess the degree of acuteness of a lesion. If it is necessary to administer x-rays to a somewhat acute cezematous condition, because no other treatment has brought any relief, a much smaller dose is necessary than is used for a more quiescent and more chronic state. Otherwise, a severe flare-up may result, producing increased distress to the patient, and in some cases more serious complications may follow.

The main object of any form of therapy is the complete eradication of a disease condition in order to restore a patient to normal. If this is impossible, then one endeavours to produce as much relief for as long a period as possible. This aim, however, can be defeated, or the benefits desired decreased by mistakes in diagnosis, and by improper assessment of other factors such as the degree of acuteness of a disease, its location, the presence of other pathological conditions, and so on. Most of the mistakes which we encountered in our practice overseas were due to inadequate history taking and to incomplete physical examination.

A NUTRITION SURVEY AMONG SCHOOL CHILDREN IN BRITISH COLUMBIA AND SASKATCHEWAN

L. B. Pett, Ph.D., M.D. and F. W. Hanley, M.D.

Department of National Health and Welfare, Ottawa, Ont.

MORE deaths ascribed directly to nutritional deficiency diseases occurred in Canada in 1944 than from poliomyclitis. The following table, which has been newly compiled from figures supplied by the Vital Statistics Branch, Dominion Bureau of Statistics, shows that 42 people died of rickets, pellagra, beri-beri, and seurvy in Canada in 1944, and this may be compared with 38 deaths from poliomyclitis. The number of cases of poliomyclitis reported in 1944 was 722 and it is generally believed that many cases go undiagnosed: this may be even more true of malnutrition. Similarly, malnutrition leaves permanent disability in a proportion of cases, and definitely lessened health and

working ability in others. The difference is that our present knowledge is sufficient to avoid malnutrition, yet it continues to take a toll of death and disability.

Table I.

Number of Deaths Ascribed Directly to Nutritional Deficiency Diseases in Canada, Excluding Remote Areas, 1929 to 1944

	Scurvy	Beri- beri	Pellagra (non- alcoholic)	Rickets	Osteo- malacia
1929	5	2	8	203	*
1930	7	0	3	200	*
1931	5	1	8	102	4
1932	10	1	6	95	1
1933	2	1	8	66	1 5
1934	6	0	1	72	
1935	10	3	3	51	4 5 5 5
1936	12	1	2	68	5
1937	7	1	$\frac{2}{2}$	54	5
1938	11	1	2	61	4
1939	11	$ar{f 2}$	6	49	4 4 5 5
1940	6	1	3	66	5
1941	3	4	4	48	5
1942	2	3	$\tilde{2}$	45	1
1943	6	1		37	*
1944	4	ĩ	4 3	34	*

^{*}Not available.

To date there is no comprehensive idea of the amount or kind of malnutrition in Canada.¹ Such knowledge is important if levels of nutrition are to be maintained and improved according to reasonable plans and with economy of effort. It is important to the practitioner by indicating the background of the population from which his patients are drawn.

The present report is the first of a series which, it is hoped, will give a reasonable picture of the nutrition problem among younger school children. It is the first attempt in Canada to utilize dietary records, blood tests and clinical examinations on a scale large enough to be representative of regions, and to integrate the findings on each individual in an attempt to diagnose several types of deficiency. The results permit generalizations even for a Province, indicating the type and extent of the nutrition problem and methods for dealing with it. A nutrition survey team from the Nutrition Division of the Department of National Health and Welfare, Ottawa, is available on request to work with Provincial and local personnel. The methods used constitute an adaptation and integration of methods currently used in the United States and in Great Britain, as a result of personal contact with investigators in both countries. Special attention is paid to the representativeness of areas and samples. All pertinent data

on each individual are recorded on special cards, permitting multiple correlations, and also permitting the preparation of confidential lists of names for special attention by local personnel.

MATERIAL

British Columbia.—In British Columbia the survey was carried out in January and February, 1946, in co-operation with the Provincial Board of Health, the Metropolitan Health Committee of Vancouver, the British Columbia Red Cross Society, and local personnel. A total of 1,495 pupils in 16 different schools spread among five areas were studied: Vancouver, Nanaimo, Fraser Valley, Caribou, Vernon. An additional 157 Chinese and 26 Sikh children were studied separately. Most of the children were aged 5 to 11 inclusive, the sample constituting 1.74% of this age group in the Province; those in the age group 12 to 14 years comprised 0.32% of that group.

Saskatchewan.—In Saskatchewan the survey was carried out in May and June, 1946, in cooperation with the Department of Public Health and local personnel. A total of 1,465 pupils in 43 different schools spread around five areas were studied: Regina, Swift Current, Rosetown, Prince Albert, Foam Lake. Most of the children were aged 5 to 11 years inclusive, the sample being 0.85% of this age group in the Province; those in age group 12 to 19 years comprised 0.25% of that group in the province.

Dietary records.—These consisted of a simplified questionnaire form based on the number of servings of each food recommended in Canada's Food Rules, and were kept by the pupils with the aid of parents and teachers during one week. These results would indicate the diet for at least 5 winter months and steps are being taken to balance this picture with results when fresh foods of summer are more available. Ultimately it is expected to make this semi-quantitative food habit enquiry at intervals for at least a year before doing physical examinations.

Physical inspections.—These were shortened by omitting prolonged study of heart and lungs, and concentrating on those parts of the body which are most likely to show signs of malantrition, namely, (1) the epithelial tissues, as in the skin, tongue, gums, lips and eyes; (2) the skeletal system as in bone formation of head and chest. A diagnosis of malantrition based on inspection alone was avoided. All findings were considered along with objective signs before a final diagnosis was made. It is believed that this procedure is essential in order to compare results on different population groups and the work of other investigators.

All children were weighed and measured but these figures are for the record only, owing to the uncertainties regarding suitable tables for comparison. Thinness of children was estimated by the amount of subeutaneons fat felt or measured in a loose fold of skin over the triceps, allowing for age, sex and build. The term does not necessarily imply underweight. Carious teeth, either filled or not, were counted without aid of instruments. Four decayed or filled units were called "moderate", while "marked" meant half the

bicuspids and molars were affected. "Severe" caries was reserved for cases showing few whole teeth. Posture was graded by beginning with "moderate" or "bad" if the scapulæ were considerably winged, together with various degrees of kyphosis, compensatory lordosis and protruded abdomen. All doubtful examples of any physical sign were excluded, and signs were definite enough to be readily classified by either examining doctor with the adjectives mild, marked or severe. No obvious thiamine deficiency was found but children are not prope to show signs short of actual beri-beri. so that this aspect of nutrition is not readily covered.

Blood-testing.—This was confined to the possibilities of several drops of blood taken from a finger, analyzed by the micro-methods of Bessey and Lowry, and to the limitations at the time of our laboratory arrangements. A hamoglobin estimation was earried out at once by the earbonate method in a Ceneo battery-operated photelometer. The rest of the blood in capillary tubes was centrifuged, the serum frozen and shipped in dry ice to Ottawa. Ascorbic acid by the micro Roe method, and serum protein by the kerosene-bromobenzene gradient tube were all that could be done in these surveys.

RESULTS

As explained above the results have been tabulated in the usual way with separate tables on dictary intakes, hemoglobins, serum protein, ascorbic acid levels, and on the incidence of various single signs of deficiencies. They are omitted here to save space and to concentrate on the approach suggested of combining these results on each individual to give a diagnosis comparable with usual medical diagnoses. These details may be obtained from the authors.

TABLE II.

THE ACCURACY OF THE DIAGNOSIS IS GREATLY INCREASED BY FINDING MORE THAN ONE SIGN OF A PARTICULAR DEFICIENCY IN AN INDIVIDUAL

The last column does not represent the number of diagnosed deficiencies for reasons given in the text.

1	Percentage of children in British Columbia showing:							
,	One sign		Three signs		Total			
Of vitamin A deficiency		1.7	0	0	21.6			
Of riboflavin deficiency		29.2	9.4	0.8	81.5			
Of niacin deficiency		0	0	0	2.3			
Of aseorbic neid deficiency Of rickets (healed)	3.8	0.1	0	0	3.9			
	40.3	15.2	1.3	0	56.8			

Percentage of children in Saskatchewan showing:

	•	,			•
-	One sign		Three signs		Total
Of vitamin A deficiency Of riboflavin deficiency Of niacin deficiency	19.9 39.6 2.3	1.5 11.9 0	0 1.6 0	0 0.1 0	21.4 53.3 2.3
Of ascorbic acid deficiency Of rickets (healed)	12.9 41.4	1,0 9.1	0.1 0.5	0	13.9 51.0

Table II emphasizes the importance in nutrition surveys of considering the prevalence of more than one sign of deficiency in individuals. Few diseases have a single sign which is completely pathognomonie, yet nutrition survey results are frequently reported as though the incidence of even one sign, however unspecific. indicates some kind of mild or "subclinical" deficiency. On the other hand the finding of two or more signs in one individual greatly increases the probability of that person having the disease. It does not necessarily suggest a greater severity of the disease. Since the signs of milder nutritional deficiency are not specific, much eonfusion arises in attempting to interpret tables of the incidence of single signs.

The signs of vitamin deficiencies referred to in Table II included most of the following, but many were not encountered at all in these surveys. Vitamin A: xerosis of skin. follicular keratitis, follicular conjunctivitis, conjunctival opacities, pterygium, pinguecula, xerosis conjunctivæ, corneal ulcerations or opacities. Riboflavin: pilosebaceous plugs in the naso-labial folds, angular stomatitis either aente or scars. dry lips, cheilosis, "pebbled" tongue, blepharitis (with erusting), laehrymation. Niacin: pellagrous dermatitis, hyperkeratosis of elbows and/or knees, denuded papille of tongue, red tongue, smooth tongue. Vitamin C: red (or purple) gums, swollen gums, bleeding gums, recession or rectraction of gums, folliculitis, perifollicular petcchiæ, ccchymoses. parietal (or frontal) bossing, chest deformities. enlargement of wrist epiphyses.

TABLE III.

SHOWING THE INCIDENCE IN PERCENTAGE IN TWO PROVINCES OF THREE GENERAL CONDITIONS WHICH ARE TO SOME EXTENT RELATED TO POOR NUTRITION

	Moderate		Marked		Severe	
	B.C.	Sask.	B.C.	Sask.	B.C.	Sask.
Thinness Carious teeth Poor posture	63.0	46.0	0 11.0 9.0	0.1 3.6 3.0	0 0.2 0	0 0 0

In Table III are recorded three general conditions which are the outcome of a number of factors, one of which is certainly improper nutrition in the case of thinness and carious teeth; poor nutrition may often be a contributing factor in the development of poor posture.

Hamoglobin.—A detailed study of the hamoglobin results in British Columbia has been published separately.² The average was 12.8 gm. per 100 c.c. blood in a range of 10.0 to 15.7 gm.; this average may be taken as normal for children in British Columbia. A study of the distribution

curve led us to consider all those below 11.9 gm. as anæmic.

In Saskatchewan the average hæmoglobin was 13.3 gm. per 100 c.c. of blood for the 1,456 children on whom results were obtained; this may be taken as normal for children in Saskatchewan. The range was 10.3 to 16.3 gm. While 75% would be 10 gm. the distribution curve suggests that all below 11.9 gm. should be considered anæmic.

Serum ascorbic acid.—In British Columbia the average for all children was 0.57 mgm. per 100 c.c. serum in a range of 0.04 to 2.4 mgm.; about 40% of the children had values below 0.4 mgm, which is taken by some investigators³ as the lower limit of normal. This finding is in accord with the dictary results and shows little or no reserve supply; it may be related to the winter diet rather than the whole year, since physical signs of C deficiency were not so common, and these need long continued low levels to develop.

In Saskatchewan the average ascorbic acid level was 0.43 mgm. per 100 c.e. serum in a range from 0.01 to 2.0; over 56% of the children on whom results were obtained had values below 0.4 mgm. The same comments as for British Columbia may be applied here.

Serum protein .- In British Columbia the average was 6.9 gm. per 100 e.c. serum, in a range of 3.1 to 10.2 gm. The normal range is stated to be 6.0 to 8.0 gm. %, with ædema appearing at about 3.0. No child was found with edema, but 18% of the group had values below 6.0 gm. No explanation of the few high values is available at present.

In Saskatchewan the average was 6.8 gm., in a range from 3.4 to 9.8 gm., and only 4% of the children fell below 6.0 gm.

CRITERIA FOR MALNUTRITION

Instead of separate tables on dietary intakes, blood analyses and lists of individual signs these have been combined in various ways to increase the accuracy of the diagnosis of malnutrition. It is recognized that the following criteria are arbitrary, but it is suggested that they yield useful information for a conservative evaluation of nutritional status. Since all our results for each individual are on a single card, it will be easy to reassess the state of nutrition by any new set of criteria which discussion and investigation may develop.

Unfortunately few practitioners will be able to bring together such complete data as used here for diagnosis, but it is hoped that as more surveys are completed in this way, it will be possible for us to work out various correlations making it easier and surer to diagnose milder nutritional deficiencies than can presently be done.

The following are the criteria of malnutrition used for this survey:

- 1. Any child showing thinness by the criteria used,
- - (a) Definite deficiency—both of the following: (1)
 Two physical signs of the three tabulated (xerosis, follicular conjunctivitis, follicular keratitis); and (2) a diet record minimum or below in green, vellow and other vegetables.
 - (b) Probable deficiency—either of the following: (1) two physical signs; or (2) one physical sign and a diet record minimum or below in vegetables.
- 3. Niacin:
 - (a) Definite deficiency—both of the following: (1) two physical signs of the four tabulated (hyperkerntosis of elbows and/or knees, denuded lingual papille, red tongue, smooth tongue); and (2) a diet record minimum or below in whole grain cereals and meat.
 - (b) Probable deficiency—either of the following: (1) two physical signs; or (2) one physical sign and a low diet record as above.
- 4. Titamin C:
 - (a) Definite deficiency—either of: (1) one physical sign of the four tabulated (red or purple) and sign of the four tabulated (red or purple) and swollen gums, bleeding gums, folliculitis, perifollicular petechiæ); and a diet record minimum or below in citrus fruit, potatoes, and vegetables; and a serum ascorbie acid level less than 0.3 mgm. per 100 e.e.; or (2) two physical signs and either a low diet record or low serum ascorbie acid as above.
 - (b) Probable deficiency—either of the following: (1) two physical signs; or (2) any combination of two of the following three conditions; (i) one physical sign, (ii) a low diet record and (iii) a low scrum ascorbic acid as above.
- 5. Riboflavin:
 - (a) Definite deficiency—cither: (1) two physical signs from the following group: seborrhæic dermatitis, angular stomatitis, cheilosis, pebbled tongue, blepharitis; and a diet record minimum to the second minimum of the s or below in milk and cheese; or (2) three physical signs as specified above.
 - (b) Probable deficiency—either: (1) one physical sign and a low diet record as specified; or (2) two physical signs.
- 6. Rickets:
 - (a) Definite deficiency—either: (1) any recorded chest deformity; or (2) grade 3 bossing of parietal or frontal bones.
 - (b) Probable deficiency—grade (1) or (2) bossing plus grade 1, 2, or 3 enlargement of wrist epiphyses.
- 7. Anamia: A hamoglobin value below 11.9 gm. per 100 c.c. of blood.
- S. Protein deficiency:
 - (a) Definite; ædema with a total serum protein value below 6.0 per 100 e.c.
 (b) Probable—a total serum protein value below 4.0

 - grams per 100 c.c.
 (c) Possible—a total scrum protein value below 6.0 grams per 100 c.c.
- 9. Underfeeding or dietary inadequacy; a diet record minimum or below in 4 or more of the 8 foods or food groups.

By demanding a multiple correlation of history, signs, and laboratory findings, as is used in other branches of medicine, the diagnosis of "definite" malnutrition is believed to be fairly certain. There was a somewhat larger group who failed to meet these criteria, but who showed one or more suggestive indications. For example, there was a large group showing "dietary inadequacies", which, if characteristic of the diet over a long time probably constitute a transitional area from which are derived actual cases of malnutrition. Other cases are excluded from a "definite" diagnosis by virtue of such points as a good diet history or a high blood level, in the face of some physical signs.

While the diagnoses of "probable" deficiencies are considered to be less certain, yet from the standpoint of health such children deserve just as much attention as those diagnosed "definitely". For these reasons the total public health problem is the sum of both the "definite" and "probable" deficiencies. At some future time when much needed research on a statistical basis has further evaluated the signs used it will

be possible to express mathematical probabilities for the accuracy of these diagnoses.

The total of all the figures is not the total percentage of malnourished children. This will be somewhat less because multiple deficiencies are known to occur frequently.

SUMMARY

- 1. The first nutrition surveys of their kind in Canada, combining dietary studies, physical examination and blood analyses, were carried out in British Columbia in January and February, and in Saskatchewan in May and June, 1946. About 1,700 school children in the former Province and 1,500 in the latter, scattered among 16 and 43 different schools in five regions in each province were examined. The surveys are designed to assist local and provincial personnel in ascertaining the type and extent of the nutrition problem, and the means of solving it.
- 2. No scurvy, beri-beri, starvation or other marked deficiency diseases in acute form were encountered. Nevertheless a newly compiled

TABLE IV.

INCIDENCE OF (A) DEFINITE AND (B) PROBABLE MALNUTRITION IN CHILDREN STUDIED
IN BRITISH COLUMBIA

	Defini	ite	Probable		
Condition	No. of children	% (of 1,495)	No. of children	% (of 1,495)	
1. Dietary inadequacy	No criteria		375	25.2	
2. Riboflavin deficiency	32	2.1	274	18.3	
3. Thinness	214	14.3	No criteria		
4. Past rickets	169	11.3	169	11.3	
5. Anæmia	114	7.7	No criteria		
o. Andma	***	(of 1,054)	210 1021		
6. Vitamin A deficiency	8	0.5	95	6.4	
7. Ascorbic acid deficiency	ŏ	0	11	0.7	
8. Protein deficiency	ŏ	Õ	8	0.7	
5. 4 totem achorency	•	Ÿ.	•	(of 1,223)	
9. Niacin deficiency	0	0	1	0.07	

Table V.

Incidence of (a) Definite and (b) Probable Deficiencies in Children Studied in Saskatchewan

	Definit	ϵ	Probable		
Condition	No. of children	% (of 1,465)	No. of children	% (of 1.495)	
1. Dietary inadequacy	No criteria		481	31.S (of 1,513)	
2. Riboflavin deficiency	64	4.4	260	17.7	
3. Thinness	159	10.9	No criteria		
4. Past rickets	72	4.9	97	6.6	
5. Anamia	44	3.0	No criteria		
		(of 1.456)			
6. Vitamin A deficiency	11	0.8	121	8.3	
7. Ascornic acid deficiency	2	0.1	39	2.7	
S. Protein deficiency	0	0	2	0.1	
	Ť	-	_	(of 1,325)	
9. Niacin deficiency	0	0	0	0	

table of deaths ascribed to nutritional deficiency diseases is presented to show that in 1944 (the most recent figures) 42 persons died of such diseases in Canada as a whole, which may be compared with 38 deaths from poliomyclitis in the same year. The two Provinces concerned have recorded 20 deaths from nutritional deficiencies in the last five years for which there are figures. Most of these were ascribed to rickets, which is in accord with the present findings, but pellagra and beri-beri have also been given as a cause of death in these Provinces.

- 3. The problem is largely one of milder degrees of malnutrition in which there is very little agreement on methods of diagnosis.
- 4. The number of children showing dietary inadequacies was the largest group found in both Provinces. While such diets do not prove malnutrition, yet the criterion of an inadequate diet represented less than half the usual recommendations, and such children undoubtedly represent a transitional group some of which will show definite malnutrition if the diet is eaten for prolonged periods.
- 5. Thinness is at the top of the list of definite malnutrition with 14% in British Columbia and 11% in Saskatchewan. The thin child is presumably not getting enough food for reserves of energy in work or play, or for protection in disease and injury. A low energy supply may require the child to use for energy, protein needed for growth.
- 6. Definite evidence of past rickets was found in 11% in British Columbia and 5% in Saskatchewan, while an additional 11 and 7% probably had rickets in early life. This is consistent with the fact that very few children recorded ever taking fish liver oil. It also suggests a lag between knowledge and its application since rickets is a preventable disease and no child today need suffer from it. Rickets takes a considerable toll in deformed chests, legs, heads and wrists which permanently affect the whole life of the individual.
- 7. Anæmia was judged to be present in one child out of twelve studied in British Columbia but in only 3% in Saskatchewan. In children, this is not to be regarded with complacency.
- 8. Vitamin deficiencies, with the exception of riboflavin, were not very common. While definite riboflavin deficiency was not common in either Province, about one child in five was probably deficient. This compares with a low

use of milk, which is our best source of this vitamin, by 16% in British Columbia and 35% in Saskatchewan. While riboflavin deficiency may not be very disabling it is often associated with sore watery eyes and sore lips, among other conditions. Definite deficiencies of vitamin A and ascorbic acid (vitamin C) were rare, while no children were diagnosed as having definite niacin deficiency. Thiamine deficiency was not recorded because it did not prove feasible to "Probable" deficiencies of these assess it. vitamins were more common, while some single unspecific signs occurred in half or more of the children. In Saskatchewan 56% had very low serum ascorbic acid levels, associated with the observed lack of fruit in the diet, while about 40% in British Columbia were equally without reserves of this vitamin, even if not actually suffering the gum changes and other conditions sometimes found. The vitamin A deficiency was characterized chiefly by roughened skin and other findings which are easily preventable.

- 9. The estimation of malnutrition by the correlation of all evidence on each individual and by the multiple associations in the tentative criteria given are believed to increase the usefulness of the results over ordinary methods of reporting separately the dietary intakes, the blood findings and the physical signs.
- 10. Of conditions less directly related to nutrition, the most striking incidence of defects occurred in *teeth* and *posture*, both of which were worse in British Columbia than in Saskatchewan.

Grateful acknowledgment is made to staff of the Nutrition Division, Department of National Health and Welfare, Ottawa, as well as to Provincial and local personnel who are too numerous to mention, but whose assistance made these surveys possible.

REFERENCES

- 1. PETT, L. B.: Canad. M. A. J., 50: 6, 1944.
- PETT, L. B., HANLEY, F. W. AND PERKINS, E.: Bull. Vancouver Med. Ass., 22: 128, 1946.
- YOUMANS, J. B.: Nutritional Deficiencies, J. B. Lippincott and Company, 1943.

Note added to proof: The method of diagnosing mild nutritional deficiencies outlined here is similar to that employed in Italy by J. Metcoff and A. J. McQueeny, New England J. Med., 235: 451, 1946; and discussed by D. Cayer, J. Am. M. Ass., 132: 558, 1946.

I esteem a habit of benignity greatly preferable to munificence. The former is peculiar to great and distinguished persons; the latter belongs to flatterers of the people, who tickle the levity of the multitude with a kind of pleasure.—Cicero.

THE TREATMENT OF URETHRITIS* C. M. Spooner, M.D., F.R.C.S.[C.]

Toronto, Ont.

THE advent of the various sulfonamide preparations within the past fifteen years and the more recent development and clinical application of penicillin has greatly modified the treatment of many infections. The therapy of N. gonococcus infections, however, has probably been influenced as much as, if not more than, any other individual specific disease by the new therapeutic agents. Moreover, during the war years, attention has been focussed on the prevention and treatment of social diseases because of the grim realities of war demanding conservation and maintenance of effective man-power. The initial successes with sulfonamides and penicillin led to optimistic and over-enthusiastic reports of spectacular results with the new preparations. Pelouze in discussing this bluntly states, "Nowhere in all the fields of medicine have fact and fancy been more thoroughly and continually jumbled than in the case with gonorrhea and its treatment".

It is the purpose of this report to describe and discuss briefly the various therapeutic measures which were employed in the treatment of urethritis among male service personnel who were admitted as patients to No. 1 Canadian Special Hospital Overseas. It is impossible to dogmatically propound any hard and fast routine procedure to be followed. Now, as in the past, the clinician must adapt, modify or alter the treatment according to the response and peculiarities of the individual. Furthermore, the clinician's responsibility does not end when the patient is rendered asymptomatic. Repeated cultures and examinations, even after the patient has been apparently eured, are a necessity in every ease. Our experience with thousands of urethritic cases has convinced us that careful study and management of each individual ease are necessary. We found, also, in spite of many opinions to the contrary, that the discriminating use of local therapy was beneficial in many resistant eases. The occurrence of a post-gonorrheal discharge is a disturbing factor in a fair percentage of eases. When such a discharge persists beyond a few days, active

treatment must be undertaken. In our experience the residual urethritis was a troublesome sequel to gonorrhea. It certainly cannot be dismissed as a harmless catarrhal condition not worthy of consideration.

TREATMENT OF GONORRHEAL URETHRITIS

Repeated intramuscular injection of penicillin in sterile distilled water or isotonic sodium chloride solution in adequate doses over a sufficient period, is the accepted treatment for gonorrheal urethritis. The solution is usually made in strength of 5,000 units per c.c. Optimal results are obtained by injecting a total of 120,000 to 150,000 units in equal divided doses at three hour intervals for a total of eight doses. The continuous intravenous administration of more dilute penicillin solution, although more desirable because it maintains a more constant blood level of penicillin, is not practical for routine use.

The studies of Romansky and Rittmans, 6, 7 as well as Van Slyke and Hellers would indicate that the single injection of calcium penicillin suspended in peanut oil and beeswax offers decided advantages over the repeated injections of the saline preparation and is as therapeutically efficient. We have had no experience with this preparation which will undoubtedly modify and simplify the procedure of penicillin therapy in gonor-rheal infections.

Previous to and immediately following penieillin administration, the patient's fluid intake should be reduced to the practical minimum to delay the elimination of the drug. He should be enjoined to limit his physical activities until the acute phase of the infection has subsided. Hot sitz-baths taken once or twice daily are beneficial. Total abstinence must of course be enforced, not only during this stage but until the patient is pronounced cured. Local treatment such as irrigations, instillations or injections probably cause more harm than good in the very acute stage of urethritis and are definitely contra-indicated at this stage of the infection. The patient should be instructed to inspect the urethral meatus each morning and to report any changes in the quality and character of the discharge. A smear of the urethral discharge and a specimen of the first urine voided should be collected and inspected daily. Vigorous stripping and milking of the urethra is a common practice in apprehensive patients and it is essential to warn all patients against this performance. Immediately following penicillin therapy, there is a marked diminution or cessation of urethral discharge: 50 to 60% of

^{*}Read at the Sixty-sixth Annual Meeting of the Ontario Medical Association, May 23, 1946, Toronto, Canada.

cases have a cessation of discharge or, at the most, a persistance of mucoid discharge which gradually disappears within four or five days. A further 15% have mucoid discharge, persisting for ten days or longer, in sufficient amount to cause concern to the patient. Microscopic examination of the stained smear of the earlymorning urethral discharge in these eases will reveal a great deal of mucus with comparatively few cellular elements present. About 22% of patients exhibit a persistent, post-gonorrhœal discharge due to residual urethritis. The discharge is, as a rule, scanty and usually thin and watery, rarely thick and mucoid. Microscopically, there is a predominance of cellular elements over mneus in the smear of the discharge. A study of the flora of urethral discharges before treatment in gonorrheal urethritis often shows the presence of concomitant invading organisms with the N. gonococcus.

Singman9 investigated the flora of urethral discharges in 200 consecutive cases of gonorrheal urethritis. 26 cases organisms were isolated which were insensitive to both penicillin and sulfonamide in vitro. In these cases similar organisms were isolated from the postgonorrheal discharge. The future history of this group is interesting: 2 cases cleared up without further treatment; 4 cases had marked prostatic infection and responded satisfactorily to combined chemotherapy and proved refractory to the usual These were finally subjected to prostatic massage; 20 therapcutic measures. non-specific fever therapy with satisfactory results except in one case. It is obvious that organisms, which are non-susceptible to penicillin, are capable of maintaining an inflammation of the urethra after the N. gonococcus has been effectively disposed of by penicillin therapy. It is this residual urethritis, occurring in about 23% of cases, which is the treatment-problem in gonor-rheal urethritis of the present-day clinician. It may prove exceedingly refractory to treatment and is the source of dispute and criticism of the effectiveness of penicillin in the treatment of urethritis.

It is important that the patient be examined frequently after treatment. Daily smears of the urethral discharge are desirable and repeated cultures of the discharge are indicated if it is purulent. The persistence or the reappearance of the gonococcus obviously demands further penicillin therapy. It is recommended that the repeat treatment be carried out over a 48-honr period in order to maintain the blood level of penicillin over a longer period. If, on the sixth or seventh day after treatment, the patient is without urethral discharge, or, if there is only a slight mucoid discharge with very few pus cells present, a culture of the prostatic-fluid of the patient should be made. Objection is frequently made to early prostatic massage on the grounds that it stirs up infection in the gland. We have caried out prostatic massage at this

stage in thousands of eases without harmful results. If infection does persist the procedure serves as a provocative and deteets failures of penicillin treatment at an early and opportune time when further therapy can be easily instituted. It is obvious that the massage of the gland should be nothing more than a gentle stripping to express sufficient fluid for the examination.

Relapses immediately following treatment, or failure of the N. gonococcus to disappear from the urethral discharge after the initial treatment, can be expected in 3 to 6% of cases. As stated above, the obvious remedy is more intensive penicillin therapy with further microscopic and cultural studies of the nrethral discharge. I have never known the N. gonococcus fail to eventually disappear when intensive penicillin therapy was effected.

TABLE I.
PENICILLIN THERAPY IN GONORRHEAL URETHRITIS

	No. of cases	Percentage
Total	. 684	100
Cases dry within 6 days	. `425	62.13
Cases with persistent mucoid discharge.		15.35
Cases with purulent discharge	. 154.	22.35
Cases with prostatitis	. 51	7,4
Cases requiring non-specific fever therapy		8.7
Onc series of injections	. 17	-
Two series of injections	. 12	
Three series of injections	. 32	
Relapses	rillin therapy	3.37% 6.9

TREATMENT OF RESIDUAL URETHRITIS AND NON-SPECIFIC URETHRITIS

The treatment of urethrifis is not a routine matter. Success in therapy is more dependent on careful study and observation of the individual ease, and the application of appropriate therapy by the clinician, than the adoption of a stereotyped course of treatment. Individuals show wide variation in their reaction to a particular treatment or drug.

Any local anatomical condition which might interfere with the proper drainage of the urethra such as phimosis or pin-hole meatus should be corrected. Usually the discharge is thin and mucoid but oceasionally a very florid type of residual, non-specific inflammation of the urethra is encountered. In these very acute infections, it goes without saying, any local measures, beyond mere palliative procedures to promote drainage, are definitely contra-indicated.

General treatment .- For the most part, the importance of general treatment measures is not sufficiently stressed. Urethritis will often improve or subside completely on rest alone, a fact which should never be lost sight of in the treatment of refractory eases. In civilian life, cases are, of necessity, treated on an ambulatory basis and some compromise between activity and complete rest is obligatory. Nevertheless, the patient should understand that his eo-operation is essential. He should be urged to limit his physieal activities to the minimum. Alcohol and sexual excitement of any kind are, of eourse, strictly prohibited. The fluid intake should be increased to approximately 3,000 c.e. for the 24-hour period. Hot sitz baths once or twice a day are decidedly helpful. There is no partieular benefit in excluding tea, eoffee or other nonalcoholic beverages from the diet. The wearing of snspensories, athletic supports, or the use of sanitary bags is usually unnecessary.

Chemotherapy with sulfonamide drugs.—The sulfonamide preparations are of definite benefit in the treatment of non-specific inflammation of the lower genito-urinary tract. The great majority of eases (75 to 90%) will be symptomatically cured by the use of a sulfonamide preparation in appropriate dosage. eases not eured, there are only a few that will not be somewhat improved following their administration. Our experience led us to favour short, intensive courses of the less toxic sulfonamide drugs. Commonly 20 gm. of sulfathiazole or sulfadiazine were given daily for two-day periods without difficulty. Reactions were uneommon: in one series of 146 eases only one minor skin reaction with sulfadiazine was encountered. Adequate alkalization of the urine and sufficient fluid intake were regarded as essential features of the treatment.

Treatment with penicillin.—The indiscriminate administration of penicillin to all eases of urethritis is not to be recommended. As could be expected, the drug is ineffective in most eases of post-gonorrheal urethritis. The causative organisms have already shown their resistance to penicillin by surviving the treatment which was bactericidal to the gonococci. In non-specific urethritis, the percentage of cases due to infection with penicillin-resistant organisms is large. Under active service conditions, attempts were made to treat all cases of urethritis by the early intravenous administration of penicillin. The results were disappointing. On the other hand,

in selected cases of urethritis, where an infecting organism has been identified as penicillin-sensitive, early penicillin therapy is of course clearly indicated.

Streptomyein in the hands of Aberhart¹⁰ and others has proved effective in the treatment of eystitis due to a large group of Gram-negative organisms. When it is commercially available, it will probably be a valuable therapeutic agent in the treatment of non-specific prethritis.

Local treatment. - Penieillin therapy and chemotherapy have rendered almost obsolete many of the messy, laborious urological procedures of a decade ago. However, these methods must have had some virtues since urethritis was successfully treated even in that period. It is well to bear them in mind as some of them ean often be usefully employed as adjunets to our more modern therapeutic program. Now, as ten years ago, local treatment is emphatically contraindicated in the florid acute stage of any urethritis. Local treatment measures are most useful in the treatment of eases which have entered a subacute or chronic phase. The use of the utmost care and gentleness is a prime requisite when employing any local urethral treatment.

- (a) Irrigation.—We have found potassium permanganate solution in strength not above 1:5.000 and preferably approximately 1:8,000 to be an admirable fluid for irrigation of the anterior urethra in acute urethritis. Mucus and pus adhering to the mucous membrane are washed away and the mild astringent action of the solution is soothing and beneficial to the inflamed urethral lining membrane. Urethral irrigations are done once or twice a day.
- (b) Injection.—The local irritation of the inflamed anterior urethra is often markedly alleviated by the injection into the canal of solutions of the organic silver salts. The introduction of the medication is accomplished by means of a glass syringe with a rubber bulb ejector. The patient should urinate before each injection to cleanse his urethra of as much exudate as Ordinarily, 10 to 15 e.e. of drug is possible. sufficient at each injection, and the patient should be instructed not to attempt to force the fluid too far into the urethra. The medication is retained by the patient compressing the lips of the meatus together for about five minutes and is then allowed to run out.
- (c) Instillation.—Instillation is a term used in urological practice to specify the introduction

RECENT ADVANCES IN PENTOTHAL ANÆSTHESIA*

G. A. F. Wainwright, B.A., M.D.

London, Ont.

SINCE its introduction in 1934 sodium ethyl thiobarbiturate or pentothal, as it is commonly called, has attained increasing acceptance on the part of the surgeon and the anæsthetist. It has displaced the other anæsthetic measures by approximately 50% and in the past ten years has shown a high annual percentage throughout. From the Mayo Clinic the following table is indicative of its general acceptance:

INTRAVENOUS ANASTHESIA WITH PENTOTHAL SODIUM-1945

		Total
	Cases	cases
	1945	1934 to
		1945
Operations on brain, spinal cord and peri-		
pheral nerve	185	3,891
Operations on eye	194	1,306
Operations on head and neck (other than		,
above)	1.682	9.895
Dental extractions	25	269
Urologic operations	1,708	14.191
Orthonodia approxima		
Orthopædic operations	1,354	8,060
Operations on thorax, thoracic wall, breast	=00	- 001
and axilla	593	5,291
Intra-abdominal operations	466	6,232
Operations on abdominal wall and for		
hernia	193	1,562
Gynæcologic operations	1,156	10,120
Operations on anus	44	545
Total	7,600	61,362

An analysis of these figures shows the various surgical conditions for which pentothal is now considered most suitable. A scheme of the uses of pentothal at the present time will serve to illustrate the ever-growing field in which this agent is being employed.

OUTLINF OF USES OF PENTOTHAL SODIUM AS AN ANÆSTHETIC AND ANALGESIC AGENT (AFTER LUNDY2)

I. Indirect with pentothal followed by maintenance with other forms of anæsthesia.

A. Regional anæsthesia.-To avoid pain during

- injection of local anæsthesia.

 Inhalation anæsthesia. (1) To avoid distress of induction of general anæsthetic by inhalation. B. Inhalation anæsthesia. (2) For patients who have hypertension. (3) Resistant patients.
- II. Pentothal used for maintenance of anæsthesia.

A. Used alone for operations. (1) Minor operations in or out of hospital; (2) on epileptics;

(3) on psychotics; (4) major operations. B. Combined with inhalation anæsthetic and O₂ for maintenance in major and minor operations.
(1) To shorten period of rebreathing in presence of high fever or heat prostration. (2) Because

- of lack of, or insufficient preoperative medication. (3) Because of marked debility (low hæmoglobin, senility, recent marked loss of weight). (4) Because of marked respiratory depression owing to marked effect from preliminary medication.
- C. Intentionally combined with local, spinal or rectal anæsthetic.
- D. Complementary maintenance with pentothal because of: (1) Inadequate anæsthesia. (2) Complementary during operation or anæsthetic because of: (a) nausea, tremor, sneezing, coughing or hiccupping; (b) fire hazard; (c) convulsions associated with local anæsthetics; (d) eonvulsions associated with general anasthetics; (c) epistaxis; (f) acute hypertension associated with inhalation anæsthesia,
- III. Intravenous anæsthesia in obstetries.
 - A. For abdominal Cæsarean section.
 B. For operative obstetries other than Cæsarean.

C. For non-operative obstetrics. IV. Non-surgical uses of pentothal.

A. For preoperative prediction of effects of neurosurgical treatment of hypertension (Smithwick).

B. For treatment of psychosis.

C. For other non-surgical uses: (1) pain; (2) restlessness; (3) asthma; (4) medico-legal purposes; (5) migraine (occasionally); (6) tetanus; (7) status epileptieus.

STAGES OF PENTOTHAL ANÆSTHESIA

Until recently no effort has been made to classify the various stages and planes of pento-It was generally eonsidered thal anæsthesia. that the transition from one stage to another was too rapid and the signs too inconsistent and diversified to permit schematizing. since weaker solutions of the drug are being more generally used it has become evident that there are definite stages of anæsthesia with pentothal comparable to the stages of ether and other volatile anæsthetics. The recognition of these phases will render pentothal definitely more controllable and accordingly should add to its safety.

In recent and as yet unpublished work Etsten³ based a elassification of the stages of pentothal anæsthesia on the physiological action of the drug on the brain. The cerebral metabolic rate was determined by evaluating the difference in the O2 content between the arterial cerebral flow and the venous return, i.e., the metabolic rate. Neuro-anatomical allocation was made by the variation in the metabolic rate of the various parts of the brain. Patients were subjected to various depths of anæsthesia using a 1% pentothal solution in order to obtain the different stages more slowly. The various phases of anæsthesia were correlated with the nenro-anatomic allocation with the following classification:—

STAGE I.

Clouded 'consciousness .- The patient becomes euphoric: movements become inaccurate; there

^{*} Read before the Section of Anasthesia of the Ontario Medical Association on May 23, 1946.

is a complete loss of apprehension associated with a feeling of relaxation. In this stage the eerebral metabolic rate of the cortex is depressed.

STAGE II.

Hypersensitivity.-In this stage there is loss of conscionsness. If the patient has been counting aloud, this terminates. He has lost environmental contact. The neuroanatomic allocation is that the subcortical areas, particularly the thalamus, the hypothalamus and the subcortical nuclei, are now in control, with the thalamus the receptor of all painful stimuli. If the patient at this point is subjected to a painful stimulus he will respond by exaggerated movements and voluntary muscular activity of the extremities. The reason for this is that cortical control has been removed from the thalamus. Immediately the painful stimulus has been withdrawn, the patient regains his former tranquil state. This is in marked contrast to ether, under which at a similar stage an excitement phase would be provoked. The hypothalamus which controls both the sympathetic and the parasympathetic nervous systems is now somewhat depressed because pentothal has a special affinity for the hypothalamns. This explains the respiratory depression so frequently occurring at this stage.

The signs of this stage are a contracting but unfixed pupil. Eyeball activity becomes involuntary and roving in character. The corneal reflex may be present or absent. Blood pressure, pulse and respiratory rates are within normal limits.

STAGE III.

Surgical anasthesia. — This stage is divided into three planes.

Plane I, light surgical anasthesia.—The thalamus is depressed and the reaction to painful stimuli is minimal, evidenced only by a slight movement of the leg or arm. The pupils are constricted but the cychalls are eccentrically placed. The pupils still contract with light and dilate with pain. There is still no change in blood pressure, pulse or respiration.

Plane II, moderate surgical anasthesia.—A painful stimulus no longer elicits any muscular response. The thalamus, the hypothalamus and subcortical nuclei are all functionally depressed. The pupils are constricted and will not further contract to light although they will still dilate with pain. The cychalls are concentrically placed. Respiratory amplitude is diminished.

There is a respiratory response to a painful stimulus evidenced by either a short period of apnæa or an increased respiratory rate. The midbrain is now the highest remaining functioning level even though it is slightly depressed.

Plane III, deep surgical anasthesia.— The midbrain is now depressed and the pain centres situated there are no longer affected. The pupils do not react to light or pain. The respiratory rate is increased but the amplitude is diminished. The pulse rate is increased and there is a slight fall in blood pressure.

STAGE IV.

Impending failure.—Now the only remaining functioning part of the brain is the pons and the medulla. Respirations are markedly depressed with resulting anoxia. The pupils dilate. The pulse becomes fast and thready and there is a marked fall in blood pressure.

COMMENTS

Apart from the primary respiratory inhibition associated with the second stage, the respiratory depression throughout the course of the anæsthetic coincides with the depth of the anæsthesia. The clinical significance of this is readily apparent.

These observations were made with 176 pentothal on non-premedicated patients without operation. It is logical to assume that with greater concentrations of the drug, the stages will overlap and tend to merge more rapidly. Such additional factors as pre-medication and varying degree of surgical shock will create conditions divergent from those existing in this series with altered results. But this is a stimulating effort to analyze and thus render more controllable the stages of pentothal anæsthesia.

RECTAL PENTOTHAL

Weinstein. reports 2,500 cases in which pentothal was used as a basal anaesthetic. In this series there were no deaths or serious complications which could be attributed to the anaesthetic. The untoward reactions sometimes experienced with the drug when administered by the intravenous route have not been experienced with pentothal given by rectum. There is no respiratory depression, no fall in blood pressure and the recovery period is rapid. There is the same synergistic action with cyclopropane and nitrous oxide-O₂ and it is most effective as a preliminary to spinal anæsthesia.

Intravenous pentothal can be used following the rectal injection in much smaller dosage than would be required with other basal anæsthetics or preliminary medication.

The dosage consists of 1 gm. pentothal for every 50 pounds of body weight. The total amount is dissolved in 1 to 11/2 ounces of distilled water. The water may be warmed but this is not necessary. No preliminary enema is given but if one is ordered for any reason, it should be given several hours before and only plain water or saline should be used. Soapsuds interfere with the absorption of pentothal. Children tolerate the drug as well as adults when given by this route and full dosage should be employed with them. For asthenic, overweight, anemic, or senile patients however, the dosage should be reduced by 10%. Atropine in full dosage without morphine should be given one-half hour prior to its administration. The rectal instillation is made with a 50 c.c. syringe attached to a small catheter or with a funnel and catheter. It is well to run a small amount of plain distilled water through the tubing at the conclusion to ensure the patient receiving the full dose. The patient should not be disturbed subsequent to the injection. Usually in 5 to 10 minutes the patient is sleeping soundly and can be moved to the operating room without being roused. The usual duration of the sleep is 1 to 11/2 hours with a more gradual recovery than when intravenous pentothal is used.

PRECAUTIONS

A clear air-way must be maintained. If the anæsthetist is not present for the administration, the attendant nurse must be definitely instructed in this regard. Keeping the chin well forward is usually all that is required and the attempted insertion of an air-way will usually result in coughing and gagging. We have had no cases of undue depression but should such occur O_2 administration and coramine, picrotoxin or metrazol intravenously would be indicated.

CASE HISTORY

A child, aged 6 years, was admitted with a diagnosis of acute appendicitis. She had been acutely ill with measles for 5 days. Her temperature was 105° and she was coughing persistently. Coarse râles, suggestive of bronchopneumonia were heard over the chest anteriorly and posteriorly. We were hesitant to administer an inhalation anæsthesia under these conditions. It was decided to use rectal pentothal plus local infiltration. She was given 1 gm. pentothal in 1 ounce of distilled ater. In 6 minutes she was sleeping quietly. Local infiltration with 0.5% novocain was employed thereafter.

She reacted very slightly to the original insertion of the needle but did not ery out nor was there any further protest. On return to the ward she reacted slightly to supraorbital pressure and to painful stimuli of intravenous and intramuscular needles. Despite a somewhat stormy course during the next 3 days the child went on to uneventful recovery.

THE WIDENING SCOPE OF PENTOTHAL

Pentothal is an ultra-rapid barbiturate in contradistinction to the rapid (e.g., nembutal) and slow (e.g., phenobarbital). Its method of excretion is as yet not definitely understood. It was formerly believed that like other barbiturates it was detoxified in the liver and excreted through the kidneys. Masson and Beland⁶ have disproved this in their recent work and conclude that all the cells of the organism participate in the process. Patients whose liver function has been almost completely destroyed tolerate pentothal as well as the normal individual and jaundice is no longer considered a contraindication to its use. In genito-urinary work also its scope has become much wider and pentothal is being safely used for prostatectomy, suprapubic drainage, perineal drainage, etc., in cases in which there is marked impairment of the renal function. As these former contraindications were the basis for the restriction of the use of pentothal in the older age group, it is now considered as safe to use pentothal with them as any other anæsthetic There must, of course, be a full appreciation of the hazards associated with the administration of any anæsthetic in this group.

CAROTID SINUS STIMULATION

That pentothal is contraindicated in even short surgical procedures about the mouth, throat and nose, is now generally accepted. The hazard is apparently due to carotid sinus stimulation. Situated at the bifurcation of the carotid artery is a collection of stretch receptor nerve endings exerting a continual inhibitory effect on the respiratory centre through the glossopharyngeal nerve. It is sensitive to mechanical stimulus. In close proximity to it, is the carotid body. Its fibres also act through the glossopharyngeal nerve but is subject to chemo-stimulation; i.e., variations in CO₂ and O₂ tension.

The carotid sinus is supplied by only one small artery. This fact is considered responsible for the lag in the anæsthetic effect of pentothal on the sinus as compared to the rest of the nervous system. This comparative hypersensitivity decreases during the course of the anæsthetic but should pressure be exerted on the sinus, or the fibres be stimulated reflexly before

the lag is overcome, temporary or permanent respiratory failure with a marked fall in blood pressure may result. Some of the mishaps previously attributed to overdosage of pentothal are now ascribed to carotid sinus stimulation.

Probably the safest way to avert such catastrophies is to avoid the use of pentothal for surgery in the areas in which the carotid sinus might be stimulated either directly or reflexly. If it is used, there should be an interval of 5 minutes allowed to clapse from the time the patient is anæsthetized until the operation is commenced. This, of course, is to overcome the lag period of the carotid sinus.

An anæsthetic aphorism is; "The best anæsthetic is only as good as its worst administrator". The apparent simplicity of administration and technique is the greatest pitfall connected with pentothal and is responsible for mishaps which tend to condemn the drug unjustly. This was the case with its use in the American armed forces earlier in the war and for a considerable period led to the restriction of its use. The Americans claimed that there was five times the mortality with pentothal than there was with any other anæsthetic agent. This situation adjusted itself with the further recognition of the drug's limitations and with more intensive instruction in its use. Every anæsthetist who uses the drug at all extensively will develop his own pceuliar routine. However, there are certain "don'ts" which should be observed and which I submit without apology.

- 1. Don't induce rapidly. Weaker solutions given slowly will reduce or eliminate the primary respiratory depression.
- 2. Don't use strong solutions. The results from inadvertent extravenous administration are much less severe with weak solutions.
- 3. Don't exceed 1.5 to 2 gm, pentothal. In prolonged eases use balanced anæsthesia.
- 4. Don't use pentothal alone if museular relaxation is required.
- 5. Don't use it for children. They tolerate barbiturates intravenously poorly. This does not pertain to rectal pentothal.
 - 6. Don't use it for nose and throat work.
- 7. Don't use it unless O_2 is available in case of mishap. This will usually rule out office use in which subsequent muscular inco-ordination is another factor.
- S. Don't hurry reinforcing injection or exceed small amounts in an effort to offset light

anæsthesia quiekly, or to overcome coughing. twitching or laryngo-spasm.

- 9. Don't use an air-way routinely. It will often excite a cough reflex and interrupt an otherwise satisfactory anæsthetic. Usually keeping the jaw forward is all that is necessary.
 - 10. Don't use it for transpleural work.
- 11. Don't use it without preliminary atropine. If atropine has been omitted prior to the operation, give it intravenously before the pentothal.
- 12. Don't use it for a bronchoscopic before you have used it to incise a finger.

Conclusion

The essentials of an ideal intravenous anæsthetic might be defined as: (1) potency; (2) low toxicity; (3) wide margin of safety between the anæsthetic and toxic dose; (4) good muscular relaxation; (5) rapid elimination with prompt recovery period.

Such an ideal has not yet been attained, but pentothal fulfills these postulates more closely than any other that has as yet been evolved. We expect another barbiturate for intravenous use will soon be available, but I do not think its superiority is such that it will displace pentothal. The impetus given intravenous anæsthesia by the war is giving rise to more intensive investigation which should result in further progress in this field. Its limitations must be recognized, and a due respect for its hazards maintained. Used with this in mind, pentothal will, I believe, play an increasing rôle in the armamentarium of the present day anæsthetist.

BIBLIOGRAPHY

- ADAMS, R. C. Rochester, Minn., personal communication.
- LUNDY, J. A. Chinical Anasthesia, W. B. Saunders & Co., Phila., p. 513, 1942.
- 3. ETSTEN, B. Albany, N.Y. personal communication
- 4 Weinstein, M. L. and Adams, E. L. Further observations on use of rectal sodium pentothal. Anasthesia & Analgenia, July-August, 1941.
- 5 WEINSTEIN, M. L., Chicago Memorial Hospital, personal communication
- Masson, G. M. C. and Brland, E.: Influence of liver and kidney on duration of anosthesia produced by barbiturates, Anasthenology, 6: 482, 1945.

Neuro-urgeon, after 6 hours of a craniotomy, "Sister, where's the clock?"

Theatre sister, "It's gone for repair, sir."

Anasthetist, fairly sotto toce, "I shouldn't bother, Sister, stick up a calendar instead.—"In England Now", The Lancet, November 2, 1946.

CASE REPORTS

NEUROLOGICAL AND PLASTIC REPAIR OF CRANIAL AND DURAL DEFECT*

Hamilton Baxter, M.D. and Arthur Elvidge, M.D.

Montreal, Que.

The plastic repair of extensive cranial defects has become a routine surgical procedure in the recent war years and various methods have been employed. One of the techniques most commonly used has been the closure of defects with tantalum plates. We do not propose to review this subject, which has already been described in detail by various authors.1 to 5 However, in certain very serious skull defects which include extensive loss of the scalp, calvarium and even of the underlying dura, the problem of plastic repair becomes much more complicated. This is particularly true when massive infection and necrosis of bone are present.

The following case is described because it presented many of the difficulties that confront the plastic surgeon and the neurosurgeon in coping with these unusual problems. In this instance the patient suffered a severe electrical burn of the head which caused extensive loss of the scalp with underlying bone necrosis and infection. There was complete loss of the dura covering the brain in the region of the burned area with the formation of a very large, foul smelling abscess which lay between the necrotic bone and the pia arachnoid. The area of the defect measured six inches in diameter. Reconstruction of this defect required the insertion of a graft to replace the dura, the provision of a rigid support for the area of destroyed skull, and finally, a substitute for the burned scalp.

CASE REPORT

The patient, a man of 35, was repairing a power line carrying high voltage current on July 15, 1942, when the accident occurred. His head touched a high voltage were and the current was short-eireuited between his skull and his right foot which was resting against the transformer. He was thrown to the ground in an unconscious condition and required artificial respiration.

Physical Examination.—On admission from another

hospital the day after his accident the patient was in a semi-comatose condition, restless and at times irrational. Subsequently, he was found to have a right hemiplegia. right homonymous hemianopsia and some aphasia. the third day after the accident the optic dises were reported as blurred, signifying early papilledema. On the sixth day the papilledema was well established and

retinal hæmorrhages were noted in the left eye. At this time the patient developed a high fever and a marked increase of cerebrospinal fluid pressure which continued for several weeks. He was suspected of having meningitis. Eleven days after his accident, the patient was found to have a positive blood culture for Staph. pyogenes aureus. In the left parietal region there was a circular area of sealp about two inches in diameter which was charred down to the periosteum. The right foot and lower leg extending to about the middle of the ealf was severely burned, with charring of the skin and deep tissues (Figs. 1 and 2). The foot was swollen, cold and no pulsations were noted in the posterior tibial or dorsalis pedis arteries.



Figs. 1 and 2.—Extensive gangrene of the right foot and neerosis of the sealp and eranium following a severe electrical burn.

Stage No. 1—Stokes-Gritti amputation of the right leg.—One month after admission an amputation was performed on the right leg by Dr. A. L. Wilkie,

wound healed without complications.

Two months after the aecident the patient's vision had so deteriorated that he could barely distinguish light from darkness. Also at this time the necrotic area in the left parietal region had extended in size until it measured four inches in diameter. The skull was exposed and it was dead white in colour except for a central charred area. Two and one-half months after the accident it was felt that infection had developed beneath the area of exposed skull and at this time a cranicutomy was performed.

Stage No. 2—Cranicciomy for ostcomyclitis of the skull: plastic repair of dura with fascial graft.—The scalp and periosteum had been destroyed over a large. circular area of the parietal bone which was about five inches in diameter. A week preceding operation the exposed bone had turned from white to a dusky colour, with a central portion which was turning black and emitted a foul odour. It was difficult to determine whether the calvarium was involved in an infective process throughout its full thickness or whether merely the outer table was involved. Previously, it had appeared that the inner table might be intact and vasenlarized. Therefore, a hole was drilled with a burr into the necroite bone. As it perforated the inner table there was an abundant discharge of thick pus issuing from beneath the bone, presumably representing an epidnral abseess (Fig. 3). It was hoped to learn by this method whether the dura was intact. The opening was then temporarily plugged and the scalp and bone prepared for operation. The scalp edge which surrounded the area of necrosis was retracted and this immediately exposed healthy bone. The skin was incised in four places to facilitate the placing of burr holes about the periphery. The burr holes about the area of necrosis were joined with the Gigli saw, although two were united by rongeuring. The area of necrosis extended over the median longitudinal sinus. The large area of bone was then elevated and removed. This opened some bleeders over the median longitudinal sinus which were covered with packs and later on portious of muscle and fascia. On elevating the bone it was found that the dura was destroyed over a circular area about four inches in diameter. The brain could be seen through a more or less transparent membrane which was probably thickened arachnoid. This membrane dipped in along the furrows of the convolutions which were

Department of Plastic Surgery, Royal Victoria Hospital, and the Department of Neurosurgery. Montreal Neurological Institute, Moutreal, Quebec.

shallow and the curving cerebellar arteries could be seen through this semi-transluceut membrane. The cortex appeared to be dusky yellow in colour. Therefore, the abscess was situated between the arachnoid and the skull.

For various reasons the following procedure was adopted. A fascial graft taken from the right leg was placed over the dural defect. It was held in position with a few, fine, chrome wire sutures which were passed through the fascia and through the outer layer of dura only. Before this graft was applied a con siderable amount of irrigation was carried out. It may be added that the brain was under slightly increased pressure. It was also interesting to note that the normal dura ceased abruptly, exposing the pathologically thickened arachnoidal membrane through which one could see the cerebral tissue. It was as though the dura had been excised in a circular fashion placing the graft and controlling the venous bleeding from the median longitudinal sinus the wound was in rigated with Ringer's solution and a triple sulfonamide suspension. A few drops of the latter were injected beneath the graft. On gross examination the wound appeared to be quite clean. The skin edge was trimmed slightly. Some crystalline residue from the sulfonamide suspension was left in the wound although this was not considered essential. The wound was then packed with a layer of liquid paraffin gauze which was covered by a thick pad of saline dressings to the level of the surrounding scalp. A sheet of protective material was then applied and the whole diessing was landaged in place with moderate pressure.

Notes on postoperative diessings.—For the first few days postoperatively the wound was left undisturbed except for changing the outer diessings. The inner packing was irrigated with triple sulfonamide solution. On the sixth postoperative day the fascial graft was found to be intact. It was adherent to the edges of the normal dura and hardly recognizable from it. The wound edges were re-packed half-way, around with iodoform gauze and the other half was not changed. The outer part of the dressing was replaced with liquid paraffin and the whole area was covered with moist borie acid, dressings. The wound edges were just beginning to granulate at this time and there was still a moderate, amount of purulent discharge. On the tenth postoperative day the dressing was changed to balsam of Peru on gauze after irrigating with hydrogen per oxide, Dukin's solution and boric acid solution.

On the eighteenth postoperative day the outer layer of the fascia was necrosing in some areas and required superficial trimming. Healthy granulation tissue covered much of the wound which appeared cleaner (Fig. 4). Daily dressings of a similar nature were continued. By the seventh postoperative week, epithelium was spreading in from the edges of the wound over a firm, granulating surface which covered the dura and fascial graft. A small piece of bare bone was visible above the mastoid process and this was removed with a rongeur. Else where there was no evidence of active osteonyelitis. Thin epithelium continued to spread over the granulating surface and the dressings were discontinued. Two small spicules of bone appeared along the edge of the scalp defect three months after operation and were

Stage No. 3—Preparation of large pedicle flap from hirsule region of lower abdomen; this was attached to the left wrist and then transferred to the cranial deject. Instrtion of tantalum plate to replace the loss of cranium.—Three and one half months after the accident the patient's condition had improved to a point where it was considered that the plastic repair of the granulating wound of the head could be undertaken. A measured pedicle flap somewhat larger than the defect was outlined on the left side of the lower part of the abdomen (Fig. 5). This region was selected because it was very hit sute and thus, when the flap was transferred to the head, a less conspicuous bare area would be observed, especially when the remaining hair was combed over the defect. As a preliminary stage the flap was partially tubed and, subsequently, the proximal

end was attached to the lateral aspect of the left wrist. A plaster cast was used to maintain correct relationship of the pedicle and the wrist until firm union had taken place. At suitable intervals the pedicle flap was gradually severed from the abdomen, the resultant raw areabeing successively covered with dermatome skin grafts. Finally, when only a small portion of the pedicle flap remained attached to the abdomen, it was severed completely and swung up to the defect in the patient's head (Fig. 6). A very thick layer of fat was taken with the flap for the purpose of filling the deep defect and also to provide a layer of soft tissue to cover the granulating

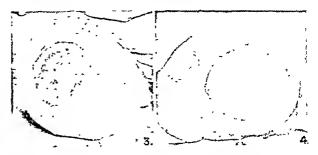


Fig. 3.—Copious discharge of pus from an epiarachnoidal absects after drilling a hole through the cranium. Fig. 4.—Healthy granulation tissue covering the fascial graft.

dura. The distal half of the flap was sutured to the margins of the defect in the scalp which had been undermined for about one inch. The flap was sutured to the scalp with a double layer of No. 40 interrupted stainless steel wire sutures. The arm was retained in correct relationship with the head by means of a plastic cap which enericled both the head by means of a plastic xeroform diessing was applied to the flap followed by a light pressure dressing. Four weeks later the pediele was detached from the wrist, and after temoving the skin graft from the undersurface of the pediele flap it was sutured to the margins of the remaining defect in the scalp. The pediele flap healed by primary union in both instances.



Fig. 5.—This shows the pedicle flap raised from the lower abdomen and attached to the wrist. Fig. 6.—At this stage the distal half of the pedicle flap has been sutured to part of the defect in the scalp.

Four months later, after an extended visit to his home, the patient returned to hospital for the insertion of a tantalum plate.

After shaving the scalp a plaster impression of the cranial defect was taken and a model was made in artificial stone. The depressed area of the defect in the model was built up with wax until the normal contour of the skull was reproduced. A second plaster impression was then taken of the margins of the defect in the

skull and the restored contour. From this impression a metal die and counter-die were made. A sheet of 0.015 inch tantalum was swaged between the dies until the correct contours had been reproduced and then the margins of the plate were trimmed and polished. The plate was perforated at regular intervals for the purpose of increasing the blood supply to the flap and also to aid in its fixation. The posterior half of the pedicle flap was incised following the scar between the flap and the scalp. The whole

well with the aid of an artificial limb attached to the right leg. However, his visual acuity had only improved to the extent that he could distinguish light from darkness.

SUMMARY

1. Experimental and elinical investigations indicate that tantalum is a satisfactory alloplastic material for the repair of cranial defects. It is non-corrosive, non-absorbent, malleable, inert in tissues and provides adequately strong support.



Fig. 7.—The final stage in the reconstruction was the insertion of a swaged tantalum plate to cover the defect in the evanium. Fig. 8.—X-ray examination of the skull two years afterwards showing the tantalum plate in position. The multiple perforations in the plate not only aid in its fixation but help to provide a more adequate blood supply to the pedicle flap above it. Fig. 9.—Postoperative photograph of the patient showing the cosmetic appearance of the flap which is not only covered by its own hirsute growth but is further concealed by combing the hair of the anterior part of the scalp over it.

flap was then undermined leaving a layer of fat covering the dura. The tantalum plate which had been autoclaved was inserted beneath the skin flap (Figs. 7 and 8). The plate was wired to the periosteum in several places but the bone was not exposed because of the danger of reactivating the previous osteomyelitis. Furthermore, fixation of the plate directly to the bone would have necessitated more complete incision of the margin of the flap which would have endangered its blood supply. The wound was then closed with a double layer of No. 40 interrupted stainless steel wire sutures. A xeroform dressing was applied followed by a light pressure dressing. Primary union occurred and the patient was discharged two weeks postoperatively.

Follow-up.—Two years after the accident the cosmetic result was satisfactory (Fig. 9). The patient's mental outlook was cheerful and there was no residual aphasia or paralysis. He walked

- 2. Pedicle flaps from distant regions may be required when *large* areas of the sealp as well as eranium have been destroyed. In this way distortion of the remaining sealp contours may be avoided and no further bare areas are created.
- 3. The use of a thick pediele flap makes it possible to insert a tantalum plate of large dimensions beneath it without interfering with its viability or disturbing the area over which the dura has been replaced by a graft.
- 4. In this case it has been demonstrated that a fascial graft can be used successfully in the presence of active infection to replace an area of destroyed dura.

REFERENCES

- 1. PUDENZ, R. H.: J. Am. M. Ass., 121: 178, 1943.
- 2: FULCHER, O. H.: J. Am. M. Ass:, 121: 931, 1913.
- 3. Robertson, R. C. L : J. Neurosurgery, 1: 227, 1944.
- 4. HEMBERGER, A. J., WHITCOMB, B. B. AND WOODHALL, R.: J. Neurosurgery, 2: 21, 1945.
- 5. WOODHALL, B. AND SPURLING, R. G.: Ann. Surg., 121: 649, 1945.

VITAMIN D2 IN THE TREATMENT OF LUPUS VULGARIS

E. Gaumond, M.D. and J. Grandbois, M.D. Quebec, Que.

The treatment of lupus vulgaris has always been more or less unsatisfactory. Such measures as finsentherapy, roentgentherapy, generalized ultra-violet rays, electro-surgery, associated or not with Gerson-Sauerbruck diet and the administration of large amounts of eod liver oil, very often gave disappointing results.

Charpy was the first to report the treatment of cases of lupus vulgaris with high doses of vitamin D2 (calciferol). This treatment, known as "méthode de Charpy", consists in the oral intake of 15 milligrams of vitamin D2 in an salt intake, and the elimination of foods rich

The following ease will demonstrate the almost spectacular results obtained with this method of treatment in an extensive case of lupus vulgaris.

Mrs. J.-F., aged 33, was first admitted to the Hôtel Dieu Hospital, Quebec, April 24, 1945, complaining of an eruption of twenty-nine years' duration, involving almost the entire face, the left knee and the dorsal aspect of the left hand.

Familial history .- Her mother died at 28 years of

age of pulmonary tuberculosis.

Past history.—At the age of 4, a small nummula-lesion appeared on the forehead. This lesion increased in size at 9 years old, and large patches appeared on the left arm and the left leg. The patient was then hospitalized for a year at Laval Hospital, Quebec During and following this hospitalization, very few lesions were in an active stage, most of them having formed a art. At 21 she had the left eye removed for an ulcerative infectious process, possibly of tuberculous nature. The skin lesions had been practically mactive, until a few months after a bilateral salpingo ovariectomy, in 1944.



Fig. 1

Fig. 2

Fig. 1.—April 24, 1945, before treatment. Fig. 2.—June, 1946, after treatment, but not with vitamin D2.

This dose is administered alcoholic solution. three times the first week, twice the following three weeks, and once a week for a period of months. A quart of milk is given daily, and 0.5 gm. of ealeium twenty days each month. Other dietary measures include reduction in the The pathological report showed the presence of a hydro sulpinx, but no evidence of tuberculosis.

During the winter 1944 45, new lesions appeared on

the face, the left hand and the left leg.

Physical examination.—Marked underweight. Morale very affected by the disfiguring skin lesions. The face was covered by well circumscribed, configurate, elevated and infiltrated patches, formed of coalescent nodules of red-brown colour. Many of these patches were ulcerated, purulent and covered by crusts. The infectious process was more evident at the tip of the nose, where there was a slight destruction of a portion of the alæ nasi

^{*} From the Department of Dermatology, Hôtel-Dien Hospital, Quebec.

(Fig. 1). Similar lesions were present on the back of the left hand. The diascopic examination showed the left hand. The disscopic examination showed numerous hupomas, especially at the borders of the The mucous membrane of the nose was also inflamed, and the septum was perforated. There was a bilateral pre-anricular and cervical adenopathy. The third finger of the left hand was in extreme flexion on the palmar surface, on account of a destructive process of the third metacarpo-phalangeal joint (see Fig. 1). The left eye was artificial. Examination of the other organs was negative.

Laboratory data. - A biopsy specimen from the border of one of the lesions showed the histo-pathological pieture of lupus vulgaris. Wassermann and urine analysis, negative. Roentgenogram, normal. Tubereulin

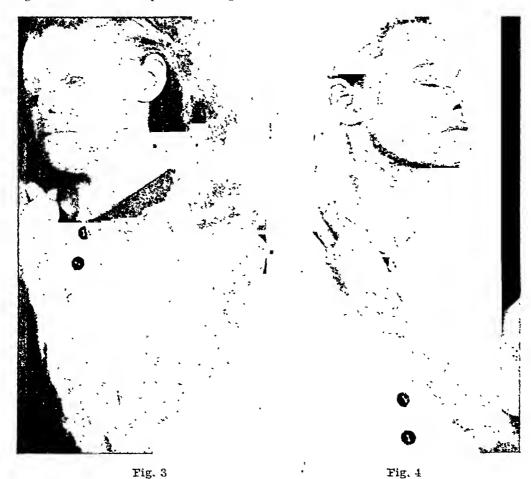
patch test, strongly positive.

The treatment consisted of rest in bed, with a high caloric and high vitamin diet. Maphaisen was given

nodular circinate patch. On the left elbow and dorsal aspect of the left hand, there were irregular shaped ulcers filled with pus (Fig. 2). On the dorsal and inner surfaces of the left knee two large patches, one of them ulcerated, were present. There was still a marked bilateral pre-anricular and cervical adenopathy. The physical examination otherwise was negative, except for underweight.

Laboratory data.-Wassermann and urine analysis, negative. Chest plate, normal. Hamocultures on Lowenstein, negative.

Treatment.—During the first days the patient received penicillin injections for a total amount of 500,000 units, tyrothricin wet dressings on the purulent lesions, followed by penicillin ointment and generalized ultra-violet After a month very little improvement was observed.



Figs. 3 and 4.—November 28, 1946, 315 months after vitamin D2.

p the extent of 0.040 gm. twice a week for ten injecons. Locally, wet dressings and cod liver oil ointment ere used. Later, the patient received fractional doses x-ray, for a total of 1,250 r (135 Kv. 5 MA) filtered lh 5 mm. aluminum.

ne patient was discharged from the hospital August 1945, four months after her admission. Her con-

24, in was only very slightly improved. dit in readmission, June 17, 1946, almost a year later, patient told us that she had been well enough for the ev months, but that since January, 1946, her skin a fe ion had become worse than ever.

condinsical examination.—The lesions of the face were Phurlamed, especially around the mouth and the tip more those. The lips were very edematous, presenting of the hall ulcerations, hindering the normal movements many smouth. The upper lip, at the edge of the nose, of the half ulcerated and the degree of the lips. ulcerated and was discharging a thick was deel. More destruction than before was seen at yellow putthe nose. The left arm was the site of a new the tip of

On August 12, 1946, high doses of vitamin D2 in au alcoholic solution were given, following the "méthode de Charpy". In the first week the patient received three times 15 mgm. and the second week, twice. Calcium gluconate was also administered orally, at the dosage of 0.5 gm. daily. No other treatment was added. In these last two weeks, it seemed that there was more improvement than in the last month. The patient was then discharged and carefully instructed to take her medication regularly (vitamin D2 twice a week for two more weeks, and once a week after).

Clinical course.—The patient was seen on October 16. two months after the beginning of the treatment. There was a surprising improvement. The ulcerations of the face, the left elbow and left hand were healed. Only one ulceration was still present, but had decreased in size, at the inner aspect of the left knee. All the elevated patches were flattened, and their colour had changed from red-brown to pink. The lips were much less ædematous. The active lesions were in many areas

replaced by a white scar tissue in which the lupomaswere imbedded. The pre anticular and cervical adeno pathy had almost completely disappeared. The patient said that the improvement was slow in the first three weeks at home, but became much more pronounced after a month. At that date she was able to enjoy spury foods, which she had found impossible to eat before, on account of the burning pain due to the ulceration of the lip-. Her morale was better.

On November 28, three months and a half after the beginning of the treatment, she came for a check up The improvement was still more evident (Figs. 3 and 4). No ulcerations were seen. The diseased skin was soft, non-ædematous, whitish and atrophic in many areas, covered by a few adherent scales. In these patches, composed for the most part of scar tissue. the Inpomas looked reduced in number in the centre, but were still numerous at the border. It seemed that we were looking at a lupus vulgaris with a diascope. Only one little calcified node was present in the left cervical region.

The patient was as enthusiastic as we were about the result obtained with this medication.

Discussion

It appears that this ease of extensive lupus vulgaris, of twenty-nine years' duration, is a good illustration of the efficacy of vitamin D2 in an alcoholic solution, in the treatment of this disease. Further observation of this patient, with repeated histopathological examinations, will be necessary to confirm the clinical as well as the anatomical cure.*

The impressive results obtained, and the absence of toxic reactions, are sufficient to say that vitamin D2 will be the treatment of choice of lupus vulgaris; and other tuberculous manifestations of the skin. It seems to have a definite beneficial action in some forms of pleurisy, peritonitis, orehi-epididymitis, and serofuloderma.

The mode of action of this drug against tubereulous lesions is still unknown, but its baeterieidal action, as well in vitro as in vivo, toward Koeh baeilli, has been reported by Raab.²

It is possible that other routes of administration (intramuseular, intravenous, and even intraspinal) would be more efficacious, if a faster action is needed. The solvent is snrely of pre-English authors.3 who dominant importance. used vitamin D2 in oil, did not obtain as good results as the French, 4, 5, 6 who used an alcoholic solvent.

SUMMARY

The treatment by the "méthode de Charpy" of an extensive case of hippis vulgaris, of twentynine years' duration, is reported. A spectacular result was obtained in three months and a half.

by the use per os of high doses of vitamin D2 in an alcoholic solution.

The use of alcohol as a solvent seems to be superior to that of oil.

This medication, which seems to be the treatment of choice of lupus vulgaris, may be also effective in tubercular lesions of other organs.

We are indebted to the British Drug Houses (Canada) who at our request, prepared and graciously supplied vitamin D2 in an alcoholic solution (Radio stol 15).

REFELENCES

- REFELENCES

 1. CHARRY, M.-J. MISE AU POINT d'un traitement du luputuberculeux, Bull. Soc Franc. de Derm. et Suph. 11: 340, 1943.

 2. RAAB, W. Vitamin D—its bactericid l'action. Dis Chest, 12: 409, 1946.

 Do vling, G. B., Prosser, T. D. W. and Wallacf. II G. Proc. R. Soc. Med., 39: 225-1946.

 CHAPIL, M.-J. Le traitement des tuberculoses cutances, par la vitamine D2 a hautes doses, Bull. Soc. Franc. de Deim et Suph. 5-6: 310, 1946.

 5. Leffeng, P. et Halle, G. 35 cas de lupus TB traite pir la vitamine D2 à hautes doses, Bull. Soc. Franc. de Deim et Suph., 5-6: 355, 1946.

 6. Lapiere, S., Résultats du traitement du lupus vulcaire par les vitamines D à hautes doses, Bull. Soc. Franc. de Derm. et Suph., 5-6: 350, 1946.

MULTIPLE MALIGNANCY CURED BY SURGERY

L. H. McKim, M.D., F.R.C.S.[C.]

Montreal, Que.

In 1932, under the title of "Multiple Malig nancy with Apparent Cure",1 a rather unusual and most interesting ease was reported showing the following periods of survival after multiple forms of malignant disease treated by surgice procedures.

- 1. Seirrhus carcinoma right breast, operation 1904—survival for 20 years.
- 2. Epidermoid cancer skm of nose, operation 1917—survival for 15 years
- 3. Fibro-sarcoma right leg, amputation October, 1921—survival for 11 years.

It is to be noted that, in the case of the sarcoma of the leg, the first excision of the tumour was performed January, 1921, at which time a mass of femoral glands was removed showing the same microscopical appearance as the primary growth. The amputation in October, 1921. was done through the mid-thigh, at a point below the site of removal of the excised glands.

In 1932, at the time of publication of the report above mentioned, the original slides were restained and again examined. The late Prof. L. J. Rhea, of the Montreal General Hospital. made the statement that, after the lapse of almost twelve years and in the light of cumulative

^{*} Parther observation of this patient and additional cases of hipus vulgaris now under treatment, will be published later.

^{*} From the Department of Surgery, The Montreal General Hospital.

experience, he considered the tumour as even more virulent than he had suggested in his original report.

The patient lived very comfortably for many years and made two trips to Europe. In 1936, she developed diabetes and was under the care of Dr. I. M. Rabinowitch. In 1940, she had a cerebral incident and developed a left hemiplegia. She almost completely recovered in a period of months. In November, 1941, she began to have symptoms of cardiac trouble (diagnosed as "cardiac asthma").

She died February 12, 1942, at the age of 89 years. At no time did she show any symptoms which might be considered as due to recurrence of or metastases from, any of her three proved malignant conditions.

This case is now being finally reported as one of three different forms of malignant neoplasm with unusually long survival after operation. Indeed, it may be considered as cured by surgery. The periods of survival are as follows:

- 1. Carcinoma breast, operation June, 1904. Survival for 37 years, 8 months.
- 2. Rodent ulcer skin of nosc, operation 1917. Survival for 25 years.
- 3. Sarcoma leg, amputation October, 1921. Survival 20 years and 4 months.

REFERENCE

1. McKim, L. H.: Canad. M. A. J., 27: 642, 1932.

MIXED TUMOUR OF THE PAROTID WITH METASTASES*

Boyce E. Sherk, M.D. St. Catharines, Ont.

A mixed tumour is defined as a complex embryonal tumour which reproduces the normal development of the tissues and the organs of the affected part. A teratoma, on the other hand, is composed of recognizable tissues and complex organs derived from more than one germ layer, and an embryoma consists of tissues of all three germ layers which are arranged in orderly imitation of the fetus. McCallum, quoting Wilson and Marchand, fixes the histogenesis when he defines the mixed tumour by stating that it represents a teratoma derived from the isolation of cells already in an advanced state of differentiation and whose capabilities are therefore limited.

In the past there have been many theories concerning the origin of the mixed tumour of the parotid gland. Ewing10 concludes his discussion of the histogenesis of the tumour by stating "that no single source of mixed tumour Some are adenomeets all the requirements. matous and probably arise from the acini and ducts of the gland in which they are incorpo-Others are encapsulated or extraglandular and take the form of basal cell or adenoid cystic epithelioma. These possibly arise from misplaced and occasionally, embryonal portions of the gland tissue". Branchial remnants may be connected with this group.11 Boyd¹² epitomizes the etiology by presenting the two best substantiated theories: one holds to the view that the tumours arise from embryonic rests, the other that they are true adenomas of the parotid gland.

The tumour is first seen as a well encapsulated small, pink to red nodule either in or on the parotid gland. Not uncommonly however multiple tumour sites are noted. At a later date it loses its capsule and infiltrates the surrounding gland tissue. The growth varies in consistency from hard to soft depending on its component tissues and whether or not large cysts are present. Upon section a mucous secretion is commonly noted and often within the solid portions of the tumour there are multiple small cysts. The microscopic appearance is varied. The commonest type shows wide zones of epithelial cells which surround or fade into mucoid connective tissue or cartilaginous tissue. The epithelial cells may vary in their form from adenoma to the compact basal type. Multiple foci of lymphoeytes and lymphoid tissue are found throughout the stroma.10

The mixed tumour is by far the commonest neoplasm involving the parotid gland. Though it is termed a "benign lesion" it shows a tendency to recur and even to become locally invasive if not completely excised. The percentage of recurrences following surgical removal of the tumour has been estimated by many workers, and it is to be noted that as the years have passed and the surgeon's knowledge of the clinical and pathological nature of this tumour has increased, the number of recurrences has steadily decreased. McFarland placed the percentage of recurrences at 25. Even though an average of one case in four recurs, it is rare for

^{*} From the Department of Pathology, St. Michael's Hospital, Toronto.

the tumour to metastasize to either the regional glands or distant organs.

A brief review of the literature reveals reports of but 25 eases in which metastases occurred from a mixed tumour of the parotid gland. Porter and Churchill2 reviewed nine such eases, one of which was their own. Olsen³ presented three eases in 1937. Montanus,4 in 1930, eited Nasse's1 two eases, the single eases of Partsh, Rispal and Sammiae, Forgue, Morgue, Molmes and Villa and added his own case. Single eases were reported by Charbonnell and Chabe (cited by Perrin⁸), Fitzwilliam,⁵ Livingston,⁶ Kammerer,7 Perrin,6 MeFarland1 and Kornblith.9 The tumour eells were disseminated by the lymphatic route in but six of these cases. two of the cases reported by Porter and Churchill, and in those of Nasse, only the regional lymph nodes were involved, while in the single cases of Montanus and Kornblith dissemination by both blood and lymph stream had occurred. In those eases in which the blood stream was invaded the lungs and pleuræ3, 4, 5 were most often involved, the remaining metastatic lesions did not show a visceral predisposition and secondary foci were reported involving the cranial bones, the lumbar vertebræ,8- the ' skin4 and the liver.7

C.O., a female, aged 33 was first admitted to St. Michael's Hospital on March 11, 1942. She stated that three months prior to admission she noticed (for the first time) a small lump behind the left angle of her mandible. The lump slowly increased in size but there was no pain or tenderness associated with it. Examination revealed a firm mass in the left parotid region. This mass extended from the arch of the zygoma to a point 2.5 cm. below the angle of the mandible and from the ramus of the mandible to the mastoid process. A sialogram on March 12, further confirmed the nature of this mass and gave additional information in regard to the degree of involvement of the gland. On March 19, the tumour was excised through a vertical incision extending from the arch of zygoma to a point slightly below the angle of the mandible. The tumour was of varving consistency, irregular in outline and appeared to involve the entire parotid gland.

The pathologist described the microscopic appearance of the tumour as "showing an abundant fibrous stroma which in places had undergone mucoid change. Scattered throughout this stroma are numerous large cell masses. The tumour cells vary in appearance, but for the most part are small and round with deeply staining nuclei and scanty cytoplasm, which in many cells is acidophilic and elsewhere is clear and unstained. In places the cells form definite small acini, elsewhere they have undergone mucoid degeneration with the formation of small cests. Certain solid accumulations of cells suggest the formation of "pseudo-cartilage". The growth is moderately vascular and small areas of hemorrhage are to be seen". The diagnosis was "mixed tumour of the parotid".

Following the operation a left facial paralysis was noted. Throughout the patient's entire stay in hospital there was a daily afternoon spike of fever to 99°. She was discharged to her home March 13.

The patient was re-admitted October 26. At that time she complained of a mass in the left parotid region that had been present since May. It began as a small nodule just anterior to the ear, and as it increased in size it became painful. She stated further that the hearing in her left ear was impaired. She did not complain of headaches.

The mass in the left parotid region appeared to lie wholly in front of the ear and measured 2" x 1". It was somewhat fluctuant in consistency and was fixed to the underlying tissues. The skin was not adherent to the mass. At operation on October 25 a tumour the size of a large walnut was removed. It was deep to the masseter muscle and tightly adherent to it. It appeared to be well circumscribed. The microscopic picture had not altered and the pathologist's diagnosis was mixed tumour of the parotid gland. The patient's post-operative convalescence was uneventful and she was discharged to her home on November 8. The final diagnosis was recurrent mixed tumour of the left parotid.

She returned to hospital for further treatment on September 30. Her chief complaints were nervousness and a recurring mass in the left parotid region. She stated that three weeks prior to admission she experienced a severe nervous attack manifested by crying spells, sleeplessness, loss of memory and marked generalized weakness. For the same period of time she experienced severe headaches, and a buzzing sound in her left ear. More recently she had noted crawling sensations over her left face and ear. In twelve months a weight loss of 28 pounds was noted.

sensations over her left take and ear. In their months a weight loss of 28 pounds was noted.

Examination revealed a hard, nodular mass overlying the left ramus of the mandible, which measured approximately 3" x 2". This mass was firmly fixed to the underlying tissues, with the overlying skin freely movable. There were no palpable cervical lymph nodes. The central nervous system examination revealed diplopia, paralysis of the left trigeminal nerve, impaired hearing and left facial nerve paralysis of the lower motor neurone type.

At operation on October 18 this tumour mass along with a portion of the masseter muscle was removed. The microscopic examination of the tumour tissue revealed a cellular and structural reduplication of the previous sections. At the time of discharge (October 28) the patient still complained of headache. The final diagnosis was "recurrence of mixed tumour of the parotid and direct extension of tumour to the left middle cranial fossa".

Ten days later the patient was re-admitted. Her chief complaints were double vision and blurring of vision, headache, loss of sensation over the left side of the face and paralysis of the left facial muscles. Examination revealed marked emaciation, weakness of the ocular muscles, left facial paralysis, diminished sensation over the left side of the face, defective learing in the left ear and marked bilateral papilledema. On November 9 the radiological examination of the thoracic and lumbar vertebræ revealed no pathological change. The patient's general condition steadily deteriorated and she died January 18, 1945.

November 9 the radiological examination of the thoracic and lumbar vertebra revealed no pathological change. The patient's general condition steadily deteriorated and she died January 18, 1945.

At post-mortem examination the body was found to be extremely emaciated. The normal contour lines of the left side of the face were disturbed by a large firm irregular mass in the left parotid region. This swelling extended from the arch of the zygoma superiorly to the angle of the mandible inferiorly and from the region of the zygomatic process of the maxilla anteriorly to the transport the ear nosteriorly.

extended from the arch of the zygoma superiorly to the angle of the mandible inferiorly and from the region of the zygomatic process of the maxilla anteriorly to the tragus of the ear posteriorly.

Examination of the brain revealed marked flattening of the convolutions of the cerebrum. The entire left temporal lobe and the inferior portion of the left temporal lobe were of a soft and somewhat cystic consistency. Firm granular pink to red tumour tissue had invaded the entire floor of the left middle cranial fossa, and the floor of the sella turcica. This tumour tissue had further invaded the inferior portion of the left temporal lobe and the hypophysis. The entire left temporal lobe and the greater portion of the parietal lobe showed extensive softening and cystic degeneration.

This cyst-like cavity which measured approximately 6 cm. in diameter communicated with the left lateral ventricle. The cranial bones of the floor of the middle cranial fossa which were invaded and replaced by the tumour tissue, were the body (hypophyseal fossa) and greater wing of the sphenoid bone, the squamous and medial one-third of the petrous portion of the temporal hone.

Exposure of the left parotid region revealed an irregular mass of pink to red granular tumour tissue. The peripheral portions of the tumour mass were of a firm consistency and were irregularly infiltrating the surrounding tissues. The more central portion of the growth was soft and necrotic. The cervical glands of this side were normal in size and consistency.

The plcural spaces were free of adhesions and contained no free fluid. The lungs were normal in weight. Each lung was nodular in consistency. Section revealed widely scattered, well circumscribed round nodules of pink to red granular tumour tissue. These nodules varied in size, the largest being 1.5 cm. in diameter. The bronchi and pulmonary vessels were patent and The remaining tissues and organs revealed no relevant lesions. Microscopic examination of the tissues confirmed the gross findings and showed the cellular character of the tumour tissue to be unchanged.

DISCUSSION

This ease demonstrates many features common to mixed tumours of the parotid gland. patient first noticed a swelling in the left parotid region at the age of 31, and by far the greatest percentage of mixed tumours of the parotid oeeurs between 20 and 40 years of age.1, 16, 12 The swelling was present for three months prior to the first admission to hospital. Benediet and Meigs¹³ found in their series of 38 eases that there was an average of seven years between the time the patient first noticed the swelling and the admission to hospital. They noted too that if the tumour showed a malignant tendency the patient eame to hospital much earlier, presumably because of more rapid growth of the mass.

At the first operation the surgeon observed that the tumour appeared to involve the entire left parotid gland and this point may have some relation to its recurrence. It is generally agreed that the histological structure and even erosion of the capsule is of no value in estimating the prognosis.1, 9, 10 Kornblith feels that recurrence of the tumour may depend on the faet that one arises from a single foeus and another arises from multiple foei. Hamilton Bailey11 adds further emphasis to this point by dogmatically stating that radical removal will guarantee an absolute cure.

Fourteen months elapsed between the first operation and the reappearance of the growth. This corresponds to the finding of Kennon who reported that most of the recurrences occurred in the first twelve months. However, it is well to note that intervals as long as 30 years have occurred between operation and recurrence.1, 10 MeFarland estimates that 79% of those cases in which the growth recurs are cured by subsequent operation or operations. It is usual for the surgeon to have been aware of the malignant nature of the tumour for a long period before the appearance of the metastatic lesion. eomnouly does this occur that one worker writes that metastases develop only after several recurrenecs and local extension of the tumour. The metastases to the lungs in this ease occurred in the final two months of life. It would appear that while complete excision of the gland and the immediate peri-glandular tissues may seem an unduly radical procedure in many eases of mixed tumour of the parotid, it is the only treatment which ensures a permanently successful result.

I am indebted to Dr. William Magner for permission to publish this case report.

REFERENCES

- REFERENCES

 1. McFarland, J.: Am. J. Med. Sc., 172: 804, 1926.
 2. Porter, C. A. and Churchill, E. D.: Surg., Gyn. d Obst., 38: 336, 1924.
 3. Olsen, G. W.: Laryngoscope, 47: 252, 1937.
 4. Montanus, W. P.: Surgery, 4: 423, 1938.
 5. Fitzwilliams, D. C. L.: The Lancet, 2: 769, 1935.
 6. Livingston, S. K.: Am. J. Roentgenol., 44: 887, 1940.
 7. Kammerer, F.: Ann. Surg., 59: 308, 1914.
 8. Perrin, T. L.: Arch. Path., 33: 930, 1942.
 9. Konnblith, B. A.: J. Mt. Singi Hosp., 6: 38, 1939.
 10. Ewing, J.: Neoplastic Diseases, 4th ed., 1940.
 11. MacCallum, W. G.: Textbook of Pathology, 4th ed., p. 1101, 1928.
 12. Boyd, W.: Surg. Path., 5th ed., p. 165, 1942.
 13. Benedict, E. B. and Meics, J. V.: Surg., Gyn. d Obst., 51: 337 and 626, 1930.
 14. Balley, H.: Brit. J. Surg., 28: 22, 1941.
 15. Krnnon, R.: Brit. J. Surg., 29: 76, 1921.

- 174 King Street.

MASSIVE PULMONARY EMBOLUS ON THE OPERATING TABLE

A. K. Moffat Magee, M.A., M.D., C.M. and R. K. Magee, F.R.C.S., F.R.C.S.[C.]

Peterborough Clinic, Peterborough, Ont.

We were doing the second stage of an abdominoperineal resection of the rectum, patient was 65 years of age with previous average health and had had a first stage colostomy and exploration ten days before. She had been adequately prepared with sulfasuxidine and transfusions. Her wounds were clean and her eolostomy was functioning well. She had been given 13 e.e. of nupercaine spinal anæsthesia and one hour had passed sinee the operation had commenced. The operation had progressed very satisfactorily. The growth had been freed to the tip of the sacrum. There had been no bleeding after the mass ligation of the superior hemorrhoidal vessels and the peritoneal floor had been elosed over the lower

loop and the upper loop had been closed. The abdomen was being closed.

At this time it was noted that the patient was passing gas through the eolostomy. At this time also one of us (A.K.M.) noted that she became restless and complained of pain in her side. Up to this time she had been very quiet, answering when spoken to, and had had a blood pressure up to that time of 120/80 which was about the pressure at the commence-

ment of the operation.

The patient was given one e.e. of pentothal thinking that she might have some discomfort from the spinal anæsthesia effect wearing off. However, she became more restless, pulled up an arm and had a slight convulsive seizure of the face. When asked if she had pain she did not reply. Her eyes rolled back and there was slight eyanosis. The oxygen mask was used for artificial respiration and intracardiae stimulants were given but the pulse was not felt thereafter and the patient did not breath voluntarily after that time. The oxygen did not help the cyanosis.

Post mortem examination was made. The abdominal and peritoneal wounds (the operation had been completed post mortem) showed no unusual features. The pleural cavities were clear but the lower lobes of both lungs showed slight superficial subpleural hamorrhages. The left ventricle and aorta were completely empty. The right ventricle was dilated and the tricuspid valve easily admitted four fingers. The pulmonary artery was completely blocked by three or four worm-like blood clots which were traced into both main branches and were continuous with clotting extending into the smaller branches of the pulmonary artery.

The eause of death was undoubtedly massive pulmonary embolus which had its manifestations in the middle of an operative procedure. One might think that this would give an ideal opportunity to perform a brilliant Trendelenberg pulmonary embolectomy. However, the pain masked by the sedative and by the operation made it difficult to be sufficiently certain of the diagnosis in time to do the life-saving

operation required in such a case.

The source of the embolus was obsenre. Did it arise during the manipulation necessary to free the rather extensive new growth in the rectum, or was it from the deep veins of the lower extremities? It is also interesting that this patient was on penicillin between her first and second operations. And lastly, after seeing the extent of the ramifications of the clot in the pulmonary system one doubts whether any operation could have been life-saving.

We do not know the frequency with which a pulmonary embolus may occur on the operating table, but this case which has come to our attention should serve to remind others that such a calamity may coincide with operation and some one may have the good fortune to successfully deal with it.

SPECIAL ARTICLE .

MODERN MEDICINE IN CHINA: ITS DEVELOPMENT AND ITS DIFFICULTIES

A. Stewart Allen, M.D.

Montreal, Que.

Although Western medicine has been practiced in China for more than a hundred years since it was first introduced by Dr. Peter Parker, it is only within the present century that signifieant progress and expansion has occurred. Dr. Parker, originally with the British East India Company, upon visiting the China Coast and seeing conditions there, determined to work permanently in China. Upon the elose of the voyage he immediately terminated his contract, returned to China under a mission board and started his medical work under very adverse conditions in Canton. From this humble start has developed the present medical profession in China with its hospitals and medical schools scattered throughout the coun-

By the last decade of the nineteenth century western medicine had its roots well secured in Chinese soil and from that time onward there has been a constant forward development, which, with each decade, has assumed a more rapid pace. With their thinking following along the stereotyped lines of their ancestors it was difficult to move the non-modernized Chinese. It was only when western education had rooted itself and the flower was in bloom that these changes could develop as they are

now doing.

It can be truthfully said that for the first sixty years all the spade work toward educating the people to accept this new style of medical practice was done through the efforts of missionary doctors. For them it was much more difficult to develop a practice than it is for present day graduates. All sorts of ways had to be thought out to entice someone to submit to medical, or what was worse, surgical, treatment. Beggars were offered food. Others were offered travelling fees. Some were even paid so that they would come to be treated by this white blue-eyed devil about whom few knew anything except that he seemed kind. And if he was so foolish as to use his money this way who were they to do any worrying about the matter?

On one occasion the Chinese friend of a missionary fell seriously ill. A whole succession of doctors failed to make any impression on his illness in spite of the multiplicity of their treatments. "You are far too valuable a man in your community to permit yourself to gradually die in this way. Why will you not let our mission doctor treat you? I believe he can cure you" entreated the missionary one day of his friend. The patient finally consented to

enter hospital provided that he was first permitted to try the three remaining herbalists in the city, hoping that they might succeed. tried their cures ineffectively and the patient entered hospital. Dramatically quinine worked its miracle. Within three days he was walking about a well man. Some time later he made enquiry of the charges for this cure which nobody else could effect. A diplomatic missionary passed off the question and made the suggestion that a very fine property, under ban because the pagoda towering upon it had failed to halt the fire dragons during the previous year, might be made available by purchase so that a modern hospital might be erected there for the benefit of hundreds of others who like himself might be cured of their illnesses. Would he give his assistance in trying to secure the site? Who could refuse a request of that kind? Today that city boasts a hospital upon one of the finest sites imaginable just because one man was cured by quinine.

EFFECTS OF WAR

But those days have largely passed and instead of having to wait for patients, they flock in by the ccore, and most of the hospitals are unable to meet the demands made upon them. Thirty odd medical schools were functioning at the beginning of the Sino-Japanese war. Some have not yet been able to graduate any of the five hundred or so men and women who were in attendance when war broke out, disrupting them altogether.

For about twenty years nursing schools had been turning out increasingly greater numbers of nurses. First these were men. Later as girls became educated and moved outside their homes they too consented to be taught the fascination of nursing. By 1940 not a man was left in the nurses training schools. They had been completely supplanted by women.

At the beginning of the war some three hundred and fifty hospitals were active in China, of which 75% were mission-controlled or sup-Some 12,000 doctors were on the medical register of the National Health Administration, only half of whom were fully trained men who could work in hospitals efficiently or teach in the medical schools. Most of the others had walked the wards with missionary doctors or graduated as nurses and turned to the profession for a living. The preponderance of nursing schools, 85%, were controlled and developed by missionary endeavour just as. medical science and hospitalization had been. Even the best equipped and stocked of these had no more than sufficient expendable supplies and equipment to carry on for longer than a six month to a year period.

War came followed by bombings. In Chungking for instance five of the six hospitals within the city were hit, some of them twice in the hundred and forty odd bombings to which the city was subjected. Losses of irreplaceable equipment and drugs were considerable. By the end of the war nearly 50% of all the hospitals in China had been completely destroyed or looted.

EFFORTS TO CARRY ON

In face of increasing demands, and with conditions such as to force the medical schools to decrease their number by half thus decreasing proportionally the numbers graduating therefrom, this was a serious situation. Combined with complete disruption of sources of medical supplies and transportation as from December 1941, with a markedly increased incidence of infective disease particularly among students, together with other factors, the hospitals became desperate. What were they to do that they might continue their ability to function?

Various relief agencies including the Red Cross Societies of various countries entered the picture. In 1943, by which time many medicines not locally produced were totally unavailable in China, the American Air Command was persuaded to permit medical supplies in limited quantities to be flown over the "Hump". From fifty to eighty tons a month was the maximum ever permitted but often this amount fell to five tons or even less.

Valiantly the Natonal Health Administration of the Chinese Government tried to manufacture some drugs from chemicals on hand or locally available. They also made sterilizing equipment and some instruments. These were all of poor quality of steel and did not stand up to the strain of hospital wear. Forceps would twist or bend in one's hand if the slightest undue pressure was used. A needle driver handle or beak would bend in the middle of an operation. Always we were working under the utmost difficulty, but at least nobody was better off than his neighbour.

The war concluded, therefore, with all active hospitals possessing a wornout plant requiring very heavy rehabilitation and almost complete replacement. Relief supplies in most cases had been just sufficient to keep the hospitals running in the best fashion possible and the equipment from completely falling to pieces.

I mentioned above the serious increase in incidence of disease. This was the result of the heavy mass migration and refugee movements combined with fatigue, poor food and lodging, and all the other factors incident to such movements, since much of the travel had to be done on foot. The worst difficulties arose from the dysenteries, typhoid fever, and tuberculosis. Always a big problem, involving a large part of the population under normal conditions, the toll of these was terrific. Tuberculosis normally affecting from 5 to 8% of the population rose to 40% in the student body of one of the medical schools. Millions died of intestinal infections. Hookworm and malaria pulled down

the vitality of the masses who had nothing to treat themselves with. Syphilis increased heavily in the Japanese-controlled areas. Postnatal tetanus continued as of old because there was no antiserum to give the newborn delivered at home. Relapsing fever claimed its victims who could have been saved with a single injection of 914. This was China during the war years.

In the spring of 1946 I had the opportunity of travelling more than ten thousand miles from one end of China to the other. Destruction was everywhere but curiously enough here and there was a hospital that did not seem to have been either troubled or damaged by the Japanese. In one of the best equipped of these I found the bedding just one mass of patches. The only thing to which it could be compared was a beggar's garment, except that the bedding was clean and neat. In spite of that the the hospital was filled to capacity and not a

single bed was available.

At the other extreme was a hospital with four walls and a roof and a single remaining iron bed. Canadian Aid to China immediately after the surrender sent a party of some seventy men, the Friends Ambulance Unit, into this area to do general relief work and rehabilitate hospitals requiring it, for here famine had raged for three years previously. Trees had to be cut down on the mission compound and sawn into boards. These were laid upon trestles. Cotton was bought from a nearby factory—one of the places where cotton was plentiful—sewn into bedding and the place was ready for occupancy. A twelve thousand delivered the state of the place was ready for occupancy. dollar surgical unit still on the ship was hurriedly unloaded, flown to the area and within three hours of arrival the first patient was on the operating table to "baptize" the unit. more hospital was, in this rough and ready fashion, put into shape to carry some of the share of the medical burden in Honan province.

Elaborate plans had been made conjointly by the National Health Administration, UNRRA and the Council on Medical Missions for UNRRA help in this rehabilitation of hospitals. But the best laid plans sometimes miscarry. When supplies arrived they did not materialize as planned. Instead of well organized lots according to specification, shiploads of whatever might happen to be at Okinawa or the Philippines arrived in Shanghai. They contained nobody knew what. Of some articles there was enough and to spare already in China. Other items were suitable for army use but useless for permanent rehabilitation purposes. Other equipment had missing parts rendering them useless.

The whole story adds up to the fact that China's hospitals have not by any means received what they require. And with UNRRA stepping out of the picture shortly voluntary agencies of all countries are being pressed to

continue their work for a further period until China's hospital rehabilitation program brings them to the point where they are able to function normally.

THE FUTURE

The plans for the future of medicine in China are hopeful. Where formerly each hospital has been a self-contained unit operating independently present plans under a very active and sympathetic National Health Administration envisage a general improvement in the quality of, and co-operation between, individual hospitals. The aim is to increase rapidly the total number of hospitals in China to 655, of which the mission hospitals, 250 of them, form the nucleus.

But this is not possible until there are sufficient graduates in China to man these institutions. Mission and Christian hospitals and medical Schools therefore must for the present be the backbone of medicine in China, though the Chinese are rapidly taking hold. There are many grade A hospitals in China and these are willing to fit into a co-ordinating plan to provide a place where China's students and graduates will receive their clinical training both within and without the university centres. It is toward this end that foreign groups in China are working.

The whole future of western medicine in China therefore hangs in the balance, depending on the Canadian or American or British reaction to our Chinese medical friends. With our assistance their program can be hurried along, without it they will have a slow uphill fight. If we are at all interested in China's progress that help must be forthcoming. For it is only thus that strong cultural ties and ultimate goodwill and friendship can be developed.

The great threat of our age to human welfare, is that societies led or driven by industrialism are gathering the individual into their fold as a service unit. The individual as a member of society thus must do a society's bidding, regardless of the particular pattern that social organization might temporarily represent. To the true scientist, the present frame of social organization is not the end of all wisdom but just another phenomenon to be viewed objectively. The scientist's limits are the boundaries of the universe, and his function cannot, without destroying him, be limited to the service of any particular social order. Industrial, social, religious, and political patterns are not yet drawn to serve mankind. It is to be loped that each governmental power will provide an easis for students who are individual elements of manhind first and servants of society last. Otherwise, intellectual growth will wither and die. Medicine is dedicated to the service of man and not to a social order. In this relation, medical research in its broadest sense has a pre-eminent cull upon every social structure for support not merely for immediate reeds but for the discovery of broad principles upon which the health of mankind depends. Let each social order therefore give the scientist a free hand and provide him with the environment and the tools he needs; make him accessible to students; . . . make the university his home, and otherwise, for humanity's sake, leave him alone.—E. W. Goodpasture, Science, November, 1946.

THE CANADIAN MEDICAL ASSOCIATION

Editorial Offices-3640 University Street, Montreal

Information regarding contributions and advertising will be found on the second page following the reading material.)

EDITORIAL

THE SCHEMM DIET IN THE TREATMENT OF ŒDEMA

TEW conditions in clinical medicine have given rise to more discussion through the years than that of œdema, and as is often the case when the pathogenesis is obscure, changing theoretical conceptions have led to varied therapeutic regimens.

For many years one of the cardinal principles of therapy in ædema has been the limitation of fluids. Schemm notes that such a regimen has not always been popular and quotes from a number of medical authors of the 18th century. One such statement is from William Withering in 1777.1 "I allow, and indeed enjoin, my patients to drink very plentifully of small liquors through the whole course of the cure," and he added in 1785, citing 163 cases, that: "This direction is the more necessary as they are very generally prepossessed with an idea of drying up the dropsy by abstinence from liquids and fear to add to the disease by indulging their inclination to drink."

The accumulation of knowledge regarding the rôle of the sodium ion in water balance regulation has led workers in recent years to an appreciation of the part played by this electrolyte in ædema -formation. Ædema is simply an increase in the interstitial fluid, and sodium is essential for its formation. Warren and Stead³ suggest that the first event to occur in the cardiac patient who becomes ædematous is a decreased ability on the part of the kidney to excrete sodium. The retained sodium leads to an increasing volume of extra-cellular fluid, and associated with this there is an increase in blood volume and a rising venous pressure. Just why the kidney's ability to excrete sodium is impaired is not explained. This theory of cedema formation is not generally accepted but the importance of the sodium ion is undoubted.

Following the teaching of Newburgh, Schemm^{1,3} in recent years has vigorously

advocated a dietary regimen in ædema therapy which he believes to be physiologically more rational and more efficacious. In place of fluid restriction, a free fluid intake is permitted of 2 or 3 litres, and in some cases. the water intake is raised to as much as 6 litres. It is believed that only with large volumes of water can the kidneys act efficiently in the excretion of sodium. Used in conjunction with the other necessary features of the diet no adverse effects have been noted by these liberal amounts of fluid in congestive failure.

Associated with this fluid allowance, the diet is low in sodium salts, 2 gm. or less, and it is balanced so as to yield a neutral or acid ash with the object of preventing "the neutralization of metabolic acids which mobilize already stored sodium, and prevents the retention or 'storage' of what sodium is taken in the diet." It is to be noted that the generally used "low-salt" diets may contain anywhere from 3 to 6 gm. of sodium chloride.

Thirst, which may be a troublesome feature for the dropsical patient, is relieved but the diet is tasteless and unpalatable to many and some apparently regard their ædema as the lesser evil. Furthermore, it is obvious from every-day clinical experience that not all cedematous patients require the dietary restrictions demanded by this regimen. appears to be applicable to those cases in which ædema persists despite the usual measures of rest, digitalis and diuretics.

Schemm has reported a gratifying experience with 402 cases. Other workers4,5 have recorded their results in smaller series, and apparently look with favour upon the achievements of this regimen in cases of obstinate congestive failure. - They consider that a wider clinical experience with this form of therapy is indicated. The Schemm regimen is not designed to replace older methods of dealing with ædema but is to be regarded as an adjuvant to therapy in cases of severe œdema. Its value will gradually be assessed as wider clinical experience with A. L. JOHNSON. it is gained.

REFERENCES

^{1.} SCHEMM, F. R.: Ann. Int. Med., 21: 937. 1944.
2. WARREN, J. V. AND STEAD, E. A.: Arch. Int. Med., 73: 138, 1944.
3. SCHEMM, F. R.: Ann. Int. Med., 17: 952, 1942.
4. BRIDGES, W. C., WHEELER, E. O. AND WHITE, P. D.: New Eng. J. Med., 234: 573, 1946.
5. LYONS, R.: J. Med. Ass. Alabama, 14: 25, 1944.

EDITORIAL COMMENTS

Soixante-quinzième anniversaire de l'Union Médicale du Canada

l' Au mois de décembre dernier on célébra le soixantc-quinzième anniversaire de l'Union Médicale du Canada, avec laquelle se fusionna en 1938 le "Bulletin de l'Association des Médecins de Langue Française de l'Amérique du Nord". L'occasion fut soulignée par un dîner au Cercle Universitaire de Montréal. Un grand nombre d'amis de L'Union Médicale se sont assemblés pour présenter leurs félicitations et bons souhaits. Plus particulièrement le docteur Albert LeSage, rédacteur en chef émérite, a reçu des marques d'estime de ses collaborateurs. Il a été le soutien et l'inspiration de L'Union Médicale pendant 44 ans.

Durant la majeure partie de l'histoire de L'Union Médicale, qui a l'honneur de la plus longue existence ininterrompue des journeaux médicaux canadiens, le docteur LeSage a été l'âme dirigeante du journal. Nous lui offrons nos respects pour son travail, et à L'Union Médicale nos plus chaleureuses félicitations et nos meilleurs souhaits.

Associate Committee for Dental Research

We note with interest the establishment by the National Research Council of an Associate Committee for Dental Research. This has been done at the request of the Canadian Dental Association who have recognized the need for organization of dental research on a national basis. This Associate Committee, which was established in March, 1945, has had several meetings and its work is proceeding favourably. It aims at stimulation of research amongst members of the dental profession, co-ordination of such research, and encouragement of collaboration with other research organizations in problems of mutual interest.

The interdependence of dental and medical problems is only too evident and this attempt to develop dental research should bear valuable fruit.

Health Week in 1947

The first week in February has for some years been selected by the Health League of Canada as "Health Week". The general intention is to emphasize the preventive aspect of disease, especially in those instances in which prevention is not only possible but is most readily practicable. Perhaps pasteurization stands out significantly as one of the measures which has won most recognition, although it is a long way from being as generally practised as it could be. Chlorination of water supplies for towns and cities is another measure of this general type. Some comfort may be extracted

from the present situation in Vancouver in that it has served to focus attention on this vital point in our public health defences, and to remind us that we must not complacently regard our water supplies as all safeguarded.

And then there are the other protective links: of vaccination: of toxoid against diphtheria: the general education in early recognition of cancer, and of tuberculosis. It is not easy to keep a steady pressure behind all these public health measures. Health Week is therefore well worthy of our active interest.

Streptomycin

Owing to the greatly increased production of streptomyein by Canadian mannfacturers it has now become possible to distribute this product to hospitals without restriction. Accordingly there is no further need for control of its distribution by the National Research Council Committee on Streptomyein. The relatively large amounts now being supplied are available for general therapeutic use and further clinical investigation by the profession at large.

Erratum

In Dr. H. K. Detweiler's paper on "The estimation of liver function" (Canad. M. A. J., January, 1917), the third paragraph, column 2. p. 52, should read: "Complete obstruction of the common bile duct, or hepatic ducts, whether due to stone, malignant disease or infective processes will result in clay-coloured stools containing no urobilin. The urine will contain no urobilinogen, but large amounts of hile."

CLINICAL and LABORATORY NOTES

THE POTENCY OF DIGITALIS WHOLE LEAF PRODUCTS SOLD ON THE CANADIAN MARKET, 1946

M. G. Allmark and A. Lavalléc

Ottawa, Ont.

During the past six months a survey of the potency of digitalis whole leaf products sold by Canadian pharmaceutical companies was carried out in this laboratory. The samples were purchased by our inspectors from pharmaceutical companies located in various cities throughout Canada.

At the present time there are 23 companies selling digitalis whole leaf products in Canada. Some of these offer for sale several dosage forms while others restrict their sales to one or two.

^{*}Pharmacology Laboratory, Food and Drugs Division, Department of National Health and Welfare, Ottawa.

The official cat method was used for all these assays. The reasons for adopting this method were outlined in a previous publication. The results are tabulated in Table I. Tablet and capsule preparations to be satisfactory for sale must be within $\pm 25\%$ of labelled potency, the tinctures within $\pm 20\%$.

There was only one product, and that was a tincture, which did not fall within the limits permitted, and 94% of the products were within \pm 20% of the labelled potency.

These results indicate that digitalis whole leaf tablets, capsules, and tinctures sold in Canada at the present time, are of very good quality and physicians may use any of the brands and expect to obtain the desired effect.

TABLE I.

	% of labelled potency								
urer	½ grain		1 grain		1½grains		2 grains		
Manufacturer	Tablets	Capsules	Tablets	Capsules	Tablets	Capsules	Tablets	Capsules	Tincture
1	75 106 113 	99 .: 115 .: .: .: .: .:	125 81 100 102 117 107 106 103	119 111 108 94 109	 94 83 123 80 101 94 113 117	 91 104 100 	· · · · · · · · · · · · · · · · · · ·	104	99 88 96 109 107 186 92 96 120 119
20 21 22 23			93 103 		97	• • • • • • • • • • • • • • • • • • •		· · · · · · · · · · · · · · · · · · ·	120 101 101

SUMMARY

1. A survey of the potency of digitalis whole leaf products sold on the Canadian market in 1946 is presented.

2. Only one product was found to be outside

the range of tolerance permitted.

3. Ninety-four per cent of the products were

within $\pm 20\%$ of labelled potency.

These results indicate that digitalis whole leaf tablets, capsules, and tinctures sold in Canada at the present time arc of very good quality as determined by the official method of assay.

REFERENCE

 ALLMARK, M. G. AND BACHINSKI, W. M.: Canad. M. A. J., 53: 361, 1945.

MEDICAL ECONOMICS

The National Service Act in Great Britain

- [The march of events in Great Britain with respect to the proposed National Health Service Act is brought up to date (within 6 weeks) by the following extracts from the British Medical Journal of December 21, 1946.].

Council's Decision on the Health Act

The following statement was issued to the Press on December 12 by the Chairman of

Council, Dr. H. Guy Dain.

As everyone knows, the medical profession has stated plainly through its Negotiating Committee that the National Health Service Act as passed is in conflict with the principles of the profession. That was the position before the plebiscite was taken. The question posed to the profession by the plebiscite was "Shall we or shall we not enter into any discussions on the framework to be created within the limitations of that Act"? The results of the plebiscite are now known. The Council of the British Medical Association met yesterday to examine the results. The question it plainly had to consider was whether there was a majority and, if so, whether it was a sufficient majority to justify not entering into discussions with the Minister. The Council's answer to both these questions is in the affirmative. It decided to call a Special Meeting of the Representative Body on January 28 next to consider the results of the plebiscite and to approve the following resolution:

Resolved.—That the Negotiating Committee be advised that in view of the results of the plebiscite the Minister be informed that because of the divergence between the principles of the profession and the provisions of the National Health Service 'Act, the Committee is unable to enter into discussions with the Minister on the Regulations to be made under that Act.

This followed a discussion on the result of the plebiscite, which was presented in such detail as to enable the attitude of every branch of the profession to be assessed.

It was at once apparent that of the doctors mainly concerned—i.e., the general practitioners, 64% had voted against negotiating. As was to be expected, this situation was reversed in the case of men already in whole-time salaried appointments, though the large proportion of those actually in Government service voting against negotiation was regarded as significant.

The poll of civilian doctors was just over 80%, an extraordinary response comparing more than favourably, for example, with the poll at the last two General Elections. Of this, 54% were "No" and 46% "Yes." The Service poll was inevitably small, on account of distance and difficulty of tracing units, only 32% replies

being received to date. Of these 56 3% voted "Yes" and 43.7% voted "No."

An examination of the analysis shows a consistent picture all the way through. In the general practitioner group the young doctors effectively support the majority against negotiation. There is no question of age overweighting the decision.

The B.M.A. is a democratic body and in the light of these figures the Council has no mandate

to negotiate.

The position therefore is that the B.M.A. is not empowered to accept any invitation that may be given by the Minister to the medical profession to join him in discussing the regulations to be made under the National Health Service Act. He may have many offers of help, but none from the main body representing the profession.

It is important to remember that the National Health Service Act is not a Conscription Act and that a decision not to join the Service is not disloyalty to the country. Whatever the ultimate outcome the doctors will be loyal to their ealling and to their patients, to whom, as

always, they owe their first duty.

[Extracts from an editorial in the B.M.J.,

December 21, 1946, entitled "No".]

"....The Minister of Health has not taken into account the strong individualism which is characteristic of British medicine and responsible for its finest achievements. His enthusiasm for collectivism and centralized power has led him to misread the psychology of the practising doctor and to challenge certain fundamentals of his work. He is trying, in fact, to apply the principle of nationalization to the most individual of relationships between employer and employee-in this case the employer being the patient and the employee being the doctor. The medical profession has been warned by Mr. Bevan's phrase about the doctors not being ripe for plucking, by Mr. Greenwood's statement in the Second Reading debate that the Labour Party's policy of nationalization was unchanged, by the Lord Chancellor's revealing remarks in the Lords debate on the Third Reading which linked certification with basic salary. That the fears of the doctors are not groundless was shown in a startling fashion by the inept decision of the borough of Willesden to turn nurses and doctors out of hospital if they did not join trade unions against their will. The hasty retreat of the Willesden councillors and the repentant messages issued by Mr. Bevan and Mr. Isaacs have deceived no one. It is just that the moment is not yet ripe.

"... The British Medical Association, the

Negotiating Committee, and the Minister of Health are now for the first time fully informed of the considered opinion of the medical profession on the Act and its implications. In the recent past the Minister and various medical publicists have referred to a mythical large

proportion of those favouring the Government's health scheme These matters are now put beyond guessing through a plebiscite which has been answered by over 80% of the medical profession in this country—a truly remarkable poll. No one could or should underestimate the gravity of the situation the poll has revealed. No one, least of all doctors themselves, can be otherwise than gravely disturbed by this profound division between the Minister and those upon whom he must rely to operate the National Health Service Act. The general public and its representatives in Parliament cannot fail to be dismayed when they see on the eve of the putting into force of the National Health Service Act that its provisions are such as to conflict with the principles laid down by the Negotiating Committee, representative of all sections of medical life. Both people and Parliament must surely believe that there is something radically wrong in this Act if the majority of those who are asked to work in it declare that its provisions are such as to convince the majority of British doctors that the Act is against the public good. For this is what the vote means.

In framing his Act Mr. Aneurin Bevan refused to negotiate with the medical profession. This was a one-man decision. The medical profession now contemplates refusing to negotiate with the Minister. This is a decision reached by more than 20,000 doctors—those saying No. The one decision is dictatorial: the second is democratic in the real meaning of the word. It but remains to be pointed out that if the Minister proceeds with his Regulations and fixes an appointed day those doctors who wish to work in it will do so and those who wish to remain outside it will do so. We believe that unless some radical change is made between now and the appointed day the numbers of those deciding upon the latter course will increase. It is for the Minister to find a way out of this impasse.

[From the B.M.J., December 21, 1946]

STATEMENT BY THE MINISTER PLEA FOR "WISER COUNSELS"

After the announcement of the result of the plebiscite the following statement was issued by the Ministry of Health on December 12:

"The Minister has learnt that the B.M.A. are placing the results of the plebiscite before a Special Representative Meeting with a recommendation that the profession should refuse to discuss with him the steps to be taken to bring the National Health Service Act into operation. He hopes that before any final decision is taken accepting this recommendation, wiser counsels will have prevailed; and he feels sure that the medical profession will take no steps which would make it difficult for them to take part in the comprehensive Health Service which the people of this country so ardently desire.

"Meanwhile, the Minister has a clear duty to earry out the instructions of Parliament as expressed in the Aet, and he can no longer postpone the consultations which are a necessary preliminary to the setting up of the administrative machinery. He is, therefore, proceeding to consult all the many other interests which will be concerned in the National Health Service. He is also considering what ought to be done—and this is a matter to which he attaches great importance—to give the medical profession the opportunity of assisting to shape, and of playing its part in, the new service."

MEN and BOOKS

A SHORT HISTORY OF THE TORONTO MEDICAL HISTORICAL CLUB*

Norman B. Gywn, M.D.

Toronto, Ont.

That a club with a membership so limited as ours should have had an uninterrupted existence of nearly twenty-five years is unusual, and may be explained by our ready conformity to our unwritten constitution, which demands in a member only an agreeable personality and a willingness to contribute to an evening's entertainment. Without this latter requirement for membership, most elubs of our sort soon degenerate into mere social gatherings or disappear entirely. Dr. Crane. of Western Medical Faculty, adds however. in one of his letters. "the surprising thing to me is, that it (the Club) has carried along for the last twenty-three years: most elubs die in early infaney. Evidently there was a need and place for it: otherwise it would not have survived".

The birth of our Historical Club took place under interesting circumstances. Luckily I was able to get the important details in connection with the birth from Dr. Crane direct, and from the excellent notes made by Dr. Tovell in the early days of the Club's existence. Dr. Crane seems to have been the one most responsible for originating the idea of forming a historical club and in this connection we may reproduce one of his letters at length:

"The birth of your Historical Club in Toronto is rather unique. In February, 1923, I was doing some research work in Toronto with Dr. Banting, and I received a London paper stating that Dr. J. Walsh of New York was coming to London. I was anxious to meet him because I had read his books and had heard that he was a splendid speaker. So I went over to Brunswick Avenue and called on Paul O'Sullivan because Paul is a devout Catholic, the same as Dr. Walsh. I asked Paul if it would be possible to persuade Walsh to come to Toronto, and after we had discussed that problem. Paul started in to tell me about Servetus. After a half hour's dissertation I said to Paul that it

seemed a shame that others in Toronto couldn't have the same privilege that I was enjoying, and I suggested that he invite a group to his home and have him repeat the paper. The first man I called up was Jabez [Elliott] and between the three of us we picked out about a dozen or more men. Then it occurred to me that this would be an opportunity to form an historical club. At the meeting' I suggested a certain number of other names, and increasing the size of the Club, but it was unanimously decided that the membership be closed and that it be known as the 'Toronto Medical Historical Club'. Before the next meeting I came back to London and I think I have only attended two or three meetings since its inauguration. I think Jabez was the first president but I am not sure of the names of the other officers. So I have had very little to do with your organization since 1923."

The Dr. Walsh to whom Professor Crane refers was the late Professor J. J. Walsh of the Medical Faculty of Fordham University, the well known Roman Catholic Institution in New York. An exceptionally well versed student of the history of medicine, one finds him referred to in the Garrison History of Medicine no less than eleven times. He was the anthor of a history of medicine in North America and contributed extensively on the subject. He was professor of nervous diseases as well as professor of the history of medicine, and at the time of his death in 1942 was Dean of the Medical Faculty. One remembers that years ago one of his contributions bore the title "The Thirteenth. Greatest of Centuries". This provoked an active discussion in which Sir William Osler took a leading part.

Whether Paul O'Snllivan read his paper on Serveins to a selected group I cannot determine. The first gathering of those interested in the history of medicine seems to have been at Dr. Elliott's house and little else took place so far as the organization of the Club was concerned during 1923. The ferment however was evidently at work and a formal meeting must have been arranged for January 24, 1924, at the house of Dr. Elliott.

A congenial group had been gathered together—Sir Bertram Windle, Drs. H. B. Anderson, J. N. E. Brown, Arnold Clarkson, George Porter. Professors Brett, Horace Speakman, Wasteneys, J. W. Crane, of London, Ont., and Dr. Paul O'Sullivan. With Dr. Elliott-these enthusiasts made up the membership at this first meeting. Dr. Elliott as host was installed in the chair, a secretary, Dr. Paul O'Sullivan, was elected and Judge Riddell, Sir Bertram Windle and Professor J. W. Crane were elected to honorary membership. The business of organization then began. Dr. Elliott outlined the purposes of

^{*}Read before the Toronto Medical Historical Club, October 18, 1946.

^{*} After twenty-three years Dr. Crane's memory might be a little uncertain. One notes on page two that he has called up Jabez Elliott after being in touch with Dr. O'Sullivan and the three of them came together, discussed matters and suggested the names of a dozen or more men. This is not the meeting to which he refers two or three lines below. The meeting at which he suggests a certain number of other names, and increasing the size of the Club was the larger gathering which took place at Dr. Elliott's house at a later date.

calling his guests together. These were to encourage research in the history of medicine in general and in the history of Canadian medicine in particular. He suggested that the Club should collect and preserve any article of historical value.

Following the open general discussion, the Chairman called for suggestions as to what form the Club should take. Dr. Anderson proposed an organization which might add to its numbers at any time. Professor Speakman emphasized as a start the study of general medicine. Professor Wastenevs urged that each member be allowed to develop his individual taste Porter felt that the historical section of the Academy of Medicine was quite inadequate for its purpose and that a medical historical club would fill a long felt want. Dr. J. N. E. Brown favoured an open membership. He suggested that the Club meet at Hart House and dinc. He did not feel that the Club should limit itself to things dealing purely with medical history. He thought that immediate attention should be paid to our local history since the pioneer men had dropped or were dropping out.

It was finally decided that meetings should take place at the homes of the various members. There was to be an executive committee of three. The member at whose home the meeting should take place was to be the host, the chairman, and to be responsible for the evening's program. The Club was to have a limited membership of about thirteen or fourteen since in many cases the homes of the various members were hardly suited for large gatherings. The meetings were to take place once a month during the late fall, winter, and early spring. It was proposed that the Club bear a name such as Osler, Widmer, Workman, following a custom now very general in the medical schools of today but in the end, it was decided that the simple title "Toronto Medical Historical Club" might be more appropriate for an organization which was not limiting its membership to purely medical men.

It would seem that an election of an executive committee took place, but there is nothing to confirm this, and it would look as if such a committee had never carried on. The place and time of the next meeting was decided upon. Dr. II. B. Anderson and Dr. J. N. E. Brown offered to read papers. It was decided that the Club might add to its members and several names were proposed. Dr. Elliott exhibited a number of his interesting and valuable books.

The names of those who might be called the charter members of the Club have been mentioned. In the course of the next meetings. Drs. Tovell and Sir Frederick Banting were unanimously elected to membership. Dr. Tovell was promptly penalized by being made archivist. Having been commissioned by Drs. Allan Baines, Alex. McPhedran and Mande Abbott to give sketches of Osler's early life, it was supposed that I had an historical bent, and might

be admitted to select circles. Previous to Sir William Osler's death, however. I had only made one contribution to the history of medicine, a paper read in Baltimore on "Dietl's Aphorisms on Phlebotomy".

Careful scouting revealed the fact that two outstanding characters in Toronto—Professors Osear Klotz and Playfair McMurrich—were deeply interested in the history of medicine. Companionable and congenial to an unusual degree, they were at once admitted to the Club. bringing the active membership to fourteen. In 1927, following the reading of an excellent paper on the "Psychology of Research" Professor Walter Libby was elected to honorary membership. Dr. Libby, let it be known, lectured on the history of medicine at the University of Pittsburg and is the author of a short and delightful history of medicine. He has as well, made many other contributions on the subject.

At meeting subsequent to 1924, the office of president must have been created, an office to be held for one year. All of the original members held this office in turn, except Sir Frederick Banting and Professor Speakman, whose staff meetings clashed with those of the Professor Speakman was therefore elected to honorary membership in 1932 as was Sir Frederick in 1936. To aid the president in his arduous duties a silver mounted gavel made from wood taken from the ruins of the house in which Sir William Osler was born, was presented to the Club at one of its meetings in With the election of Professor Holman in 1936 seemed to have begun the custom of making each new member of the Club, prestdent for the ensuing year.

The important position of secretary to the Club was held in succession by Drs. Paul O'Sullivan, Porter and Clarkson up to March, 1945, when Dr. Wasteneys agreed to assume this responsibility. Dr. Paul O'Sullivan, the first secretary, was elected president in the second year of the Club's existence. Dr. Porter is noted as heing the second secretary in 1925 and apparently was kept in office till 1941, when he resigned in favour of Dr. Clarkson, who in turn was secretary till 1945.

As early as 1925 Dr. Porter notes, "It was decided that the secretary should take notes of the proceedings and keep them on file for reference but not present them formally each night." As already noted an archivist was early appointed in the person of Dr. Harold Tovell. In a personal letter to me, Dr. Tovell deplores the delinquency of Club members in not handing over to him their papers or communications for collection. Some papers he says are at the Academy of Medicine in the librarian's keeping. Many others on the other hand have been published in various journals, and it is realized, of course, that many presen-

tations before the Club are not in such form

that their reproduction is possible.

Such were the foundations upon which the present society was laid. foundations which remained unaltered for twelve years, from 1924 to 1936 save for the death of Sir Bertram Windle in 1929 and the election to honorary membership of Professor Walter Libby in 1927. The limitation of membership to fourteen was

steadily adhered to.

An old saying is worded, "Happy the people whose annals are blank in history books", annals meaning of eourse, a history of death, wars, pestilence or internal disturbances. These twelve years of the Club's history rolled peaceably by with nothing but the happiest incidents to record—Banting's trip to the Arctic, Klotz's appointment by the Rockefeller Institute to study yellow fever in Africa, Elliott's election to the Chair of the History of Medicine at Toronto, and to the presidency of the American society of the same name. One records with pleasure that Professor McMurrich was asked by the Carnegie Institute to write the life of Leonardo.

The inevitable however, was approaching and Oscar Klotz answered the last call in 1936, barely three months after he had entertained us with an account of the School of Medicine at Lcyden. Professor Holman was elected to the vacancy, and Professor Coventry was admitted in the following year, 1937. Professor Mc-Murrich died in 1939, allowing Dr. R. I. Harris to be elected a member of the Club. Two years later, February 21, 1941, Sir Frederick Banting died tragically in a plane accident. His death permitted the election of Professor McIlwraith in the same year. The deaths of Professor Elliott in 1942, and of Paul O'Sullivan and J. N. E. Brown in 1943, permitted the admission of Drs. Shanks, Trebilcock and Daly, while the retirement of Dr. H. B. Anderson made room for Dr. Cameron: since Dr. Tovell finds it difficult to come from the country to the gatherings, a place was found for Dr. Craigie. Professor Brett's death permitted the admission to membership of Professor C. B. Farrar.

I may draw this detailing of organization and personnel to an end by noting that Dr. H. E. MaeDermot, of Montreal, the editor of the Journal of the Canadian Medical Association, was elected an honorary member in 1943. Among his many contributions in the line of the history of medicine is his life of Dr. Maude Abbott, who without question can be listed as foremost among Canadian medical anthors. To conclude I must refer sadly to Dr. H. B. Anderson's retirement, and to the death of one of the first of our honorary members—Judge Riddle—in February. 1945. His interest in the history of medicine is evidenced by his long list of publications. He was often seen at the Acad-

emy's historical and literary nights and he is recorded as having contributed one of the first papers to be given before the Club, "Some early medical prescriptions". These prescriptions are now at the Academy of Medicine, as are also several of the Judge's reprints.

How best to put before you the vital part of the Club's performances, the quantity and quality of papers and presentations, is no easy matter. I must spare the blushes of the members present, and time, certainly, will not allow one to make note of all the papers and presentations which the secretaries have listed as having been These now number 135 and with few exceptions were contributions by Club members. I can find no mention of paper of presentation by Sir Bertram Windle, nor do I see that he was present at any save the earliest of our meet-That he had a genuine interest in the history of medicine is shown by a paper lie read before the Academy of Medicine in 1922 on "Medicine and surgery in early mediæval Professor of anthropology at St. England". Michael's, and special lecturer on ethnology at the University. Sir Bertram was widely known as a scholar and above all as a kindly gentleman. Some of you may remember his interesting will in which he provided for scholarships for English Roman Catholic students, they, according to Sir Bertram, being the finest type of Roman Catholic.

Present at some of our meetings were guest speakers, such as Judge Latchford of the Ontario bench, who spoke on his collection of shells. Dr. Francis gave the history of the Osler Library at McGill. Dr. Heagerty, of Ottawa, dwelt on the history of Canadian medicine. Dr. Drake, of Toronto, showed his collection of early feeding utensils and Professor Needler entertained us with a talk on the "Lone sheiling" at the last of the delightful entertainments likely to be given by H. B. Anderson. At one of our earlier meetings Dr. Tovell introduced to us Professor MacIlwraith, not as yet a member of the Club, who gave us a remarkable demonstration of the medical practice of the Indians of the West Coast.

This concludes the short history of the Toronto Medical Historical Club, for the details of which I am indebted to the early notes of Professor Cranc, to the reports briefly made by the several secretaries already named, and to Miss Poole, librarian of the Academy of Medicine.

It is well to remind ourselves that the progress in control of tuberculosis has been in spite of incomplete and delayed reporting, in spite of the insidious and silent nature of early pulmonary disease, and in spite of the lack of any specific resources for creating immunity for cure in the chemotherapeutic sense.— Diplomate, December, 1946.

^{*}An aphorism of Montesquieu quoted in Carlisle's 'Life of Frederick the Great'.

ASSOCIATION NOTES

COMMITTEE IN CHARGE OF ARRANGEMENTS—ANNUAL MEETING CANADIAN MEDICAL ASSOCIATION, WINNIPEG, JUNE 23-27, 1947

		Office Address	Phone	Residence	Phone
Chairman General Secretary	Dr. F. G. McGuinness Dr. T. C. Routley	50 Medical Arts Bldg. 135 St. Clair Ave. West, Toronto 5, Ont.	96,701	61 Cordova St.	401,613
Local Honorary Secretary Local Secretary	Dr. D. L. Scott Dr. M. T. Macfarland	Central T.B. Clinic 601 Medical Arts Bldg.	27,301 92,707	384 Borebank St.	401,288
ADVISORY COMME				·	
	Dr. G. S. Fahrni Dr. P. H. McNulty Dr. F. W. Jackson Dr. A. T. Mathers Dr. C. H. A. Walton Dr. H. D. Kitchen Dr. J. Roy Martin Dr. Stuart D. Schultz	42 Medical Arts Bldg. 264 Edmonton Street Legislative Building Medical Arts Bldg. Winnipeg Clinic 18 Medical Arts Bldg. Neepawa, Manitoba Hospital for Mental Disease	93,605 94,335 907,435 92,979 97,284 98,231 151-R2 s,	766 Wellington Cr. 138 Harrow Street 245 Kingston Row 340 Dromore Ave. 28 Middlegate 364 Montrose St.	44,220 43,900 204,420 45,658 34,443 403,684
	Dr. J. M. McEachern	Brandon, Man. 33 Medical Arts Bldg.	98,231	53 Queenston St.	403,321
BADGES AND SIGN Chairman Secretary	s: Dr. S. A. Boyd Mr. J. Gordon Whitley	Fort Osborne Barracks 601 Medical Arts Bldg.		Ste. 1, 792 Minto St. 125 Garfield St.	35,942
Commercial Exh Chairman Secretary	usits: Dr. A. M. Goodwin Mr. J. Gordon Whitley	26 Medical Arts Bldg. 601 Medical Arts Bldg.	98,231 92,707	1260 Wolseley Ave. 125 Garfield St.	72,239
Ceremonial Pro Chairman	CEDURE: Dr. Digby Wheeler	103 Medical Arts Bldg.	93,521	2106 Portage Ave.	61,213
Entertainment: Chairman Secretary	Dr. D. S. McEwen Dr. A. C. Rumball Dr. C. C. Henneberg Dr. Ross H. Cooper	116 Medical Arts Bldg. Deer Lodge Hospital 27 Medical Arts Bldg. 32 Medical Arts Bldg.	97,706 64,861 98,231 93,103	275 Dromore Ave. 159 Woodbaven Blvd. Ste. 8, Palliser Apts. Ste. 2, Anvers Apts.	41,384 62,550 47,109 43,204
FINANCE: Chairman Secretary	Dr. W. Grant Beaton Dr. H. M. Edmison	61 Medical Arts Bldg. 103 Medical Arts Bldg.	92,800 93,521	302 Montrose St. 391 Cambridge St.	402,707 40,897
Golf: Chairman Secretary	Dr. R. W. Richardson Dr. Gilbert Adamson	42 Medical Arts Bldg. Winnipeg Clinic	93,605 97,284	191 Brock St. 727 South Drive, Fort Garry.	402,414 41,390
	Dr. T. E. Holland Dr. N. W. Warner Dr. Peere Lund Dr. W. A. Gardner Dr. J. T. Cruise Dr. I. O. Fryer	203 Medical Arts Bldg. 404 Medical Arts Bldg. Deer Lodge Hospital 52 Medical Arts Bldg. 314 Medical Arts Bldg. 530 Somerset Bldg.	96,948 94,719 64,861 92,493 95,317 98,824	80 Brock St. 236 Yale Ave. 55 Green Ave. 1158 Grosvenor Ave. 244 Queenston St. Ste. 5, Gloucester Apts.	403,139 49,674 504,089 44,585 402,864 30,576
Housing and Eq Chairman Secretary	UIPMENT: Dr. D. C. Aikenhead Dr. Emmet Dwyer,	205 Medical Arts Bldg. 373 Union Station	94,154 902,207	60 Wilton Street 207 Montrose St.	43,719 401,437
Publicity: Chairman Secretary	Dr. L. A. Sigurdson Dr. J. C. Hossack	53 Medical Arts Bldg. 416 Medical Arts Bldg.	94,762 98,936	104 Home Street 820 North Drive, Fort Garry	72,409 45,021
REGISTRATION: Chairman Secretary	Dr. C. W. Clark Dr. Cherry K. Bleeks	10 Medical Arts Bldg. 105 Medical Arts Bldg.	98,231 93,273	351 Yale Ave 810 Grosvenor Ave.	49,492 49,622
Scientific Exhib	orrs: Dr. J. M. Lederman	Medical College	23.693	140 Victoria Cres., St. Vital	205,058
Secretary	Dr. R. E. Beamish Dr. Gordon Coghlin	32 Medical Arts Bldg. 50 Medical Arts Bldg.	98,231 96,701	10 Emily Apts, 9 Linden Court	21,051 23,416
TRANSPORTATION Chairman Secretary		Great West Life Ass. Co. 52 Medical Arts Bldg.	906,017 92,493	86 Tache Ave. 870 Wellington Cres.	203,993 403,597

LOCAL PROGRAMME COMMITTEE—ANNUAL MEETING CANADIAN MEDICAL ASSOCIATION, WINNIPEG, JUNE 23-27, 1947

		Office Address	Phone	Residence	Phone
Chairman	Dr. F. A. L. Mathewson	32 Medical Arts Bldg.	98,684	Ste. 1, S12 Grosvenor Av.	44,600
Secretary	Dr. K. R. Trueman	Winnipeg Clinic	97,284	179 Oxford Street	401,645
Anæsthesia:				•	
Chairman Secretary	Dr. D. C. Aikenhead Dr. Peere Lund	205 Medical Arts Bldg. Deer Lodge Hospital	94,154 64,861		43,719 504,089
DERMATOLOGY:					
Chairman Secretary	Dr. A. M. Davidson Dr. W. George Brock	6 Medical Arts Bldg. 413 Medical Arts Bldg.	95,683 92,947	856 Palmerston Ave. 124 Elm Street	33,416 402,568
MEDICINE:					
Chairman Secretary	Dr. J. D. Adamson Dr. J. W. Macleod Dr. Lennox G. Bell Dr. A. Hollenberg Dr. D. S. McEwen	Winnipeg General Hospital Winnipeg Clinic Winnipeg Clinic 701 Boyd Building 116 Medical Arts Bldg.	87,681 97,284 97,284 97,223 97,706	Ste. 5, Shipley Crt. 226 Oxford Street Ste. "D", Hugo Annex 372 Montrose St. 275 Dromore Ave.	72,865 401,644 45,789 403,608 41,384
OBSTETRICS AND	GYNÆCOLOGY:	•			~
Chairman Secretary	Dr. J. D. McQueen Dr. Elinor F. É. Black Dr. C. R. Rice Dr. B. D. Best	Medical Arts Bldg. 604 Medical Arts Bldg. 505 Medical Arts Bldg. Winnipeg Clinic	93,273 94,684 96,232 97,284	283 Yale Ave. Ste. 22, Wiltshire Apts. Lot 117, East St. Paul 133 Montrose St.	46,936 34,351 501,352 402,789
OPHTHALMOLOGY;				-	
Chairman Secretary	Dr. Norman Elvin Dr. John T. Cruise	314 Medical Arts Bldg. 314 Medical Arts Bldg.	95,317 95,317	234 Kingston Row 244 Queenston St.	201,408 402,864
OTOLARYNGOLOGY	: ,			•	
Chairman Secretary	Dr. F. D. McKenty Dr. E. J. Washington Dr. Robert J. Black	514 Medical Arts Bldg. 202 Medical Arts Bldg. 416 Medical Arts Bldg.	92,711 93,864 • 93,851	Fort Garry Hotel 40 Waterloo Street 54 Hargrave Street	98,251 401,145 92,073
Pædiatrics:				•	
Chairman Secretary	Dr. Gordon Chown Dr. Harry Medovy	588 Broadway 401 Boyd Building	36,945 93,849	285 Montrose Street 366 Niagara Street	402,474 403,716
RADIOLOGY:		·			
Chairman Secretarty	Dr. Digby Wheeler Dr. R. A. Macpherson	103 Medical Arts Bldg. 118 Medical Arts Bldg.	93,521 98,231	2106 Portage Ave. 370 Oxford Street	61,215 401,443
SURGERY:	D D IX (0 (0) - 1 (1 -	TITT OIL	07 004	11 / C (-11 D) - 1	CO 000
Chairman Secretary	Dr. P. H. T. Thorlakson Dr. C. E. Corrigan Dr. M. R. MacCharles Dr. C. W. Burns Dr. A. C. Abbott	Deer Lodge Hospital 3 Medical Arts Bldg. 5 Medical Arts Bldg. 410 Power Bldg.	97,284 64,861 98,231 98,231 95,165	114 Grenfell Blvd. 307 Waterloo St. 128 Grenfell Blvd. 139 Grenfell Blvd. 127 Grenfell Blvd.	62,200 401,271 61,162 62,731 61,579
Unology:					
Chairman Secretary	Dr. C. B. Stewart Dr. Earl Stephenson	Winnipeg Clinic 409 Power Bldg.	97,284 95,165	318 Queenston St. 1167 Grosvenor Ave.	402,006 46,634
HISTORICAL MEDI	ICINE:				
Secretary	Dr. Ross B. Mitchell Dr. Athol R. Gordon	404 Medical Arts Bldg. 404 Medical Arts Bldg.	94,637 96,232	524 Corydon Ave. 986 Grosvenor Ave.	46,217 49,724
ARMED FORCES N		lmith			
	Lt. Col. G. L. Morgan-S (DMO, Army)	Fort Osborne Barracks	40,451	894 Dorchester Ave.	44,628
Secretary	S/L G. T. Irvine, (P.M.O., R.C.A.F.)	Stevenson Air Field	64,841	Stevenson Air Field	64,841
PSYCHIATRY: Chairman	Dr. Gilbert Adamson	Winnipeg Clinic	97,284	727 South Drive,	44 800
Secretary	Dr. T. A. Pincock	Psychopathic Hospital	87,681	Fort Garry Ste. 7, Amulet Apts.	41,390 36,588
Allergy Chairman	Dr. C. H. A. Walton	Winnipeg Clinic		28 Middlegate	34,443

The General Secretary's Page

Ten years ago, Dr. A. D. Kelly, of Hamilton, joined the staff of the Ontario Medical Association as Assistant Secretary, and, in May, 1938, he succeeded to the secretaryship. Early in 1940, he enlisted in the medical branch of the R.C.A.F. where, for more than five years, he rendered notable service, retiring with the rank of Group Captain. Shortly after his return to his post with the Ontario Medical Association, he was appointed Assistant Secretary of the Canadian- Medical Association on a part-time basis, and, on January 1, 1947, he withdrew from the O.M.A. to devote all of his time to the work of the C.M.A. It is indeed with pleasure and satisfaction that your General Secretary welcomes the eo-operation of such a worthy colleague on a whole-time basis. Between us, we shall try to keep the home fires burning brightly at the central office and be of every possible assistance to the Divisions.

The Ontario Division has a new Secretary, Dr. Harry Dunham. No, he is not new to the O.M.A. as he has been Dr. Kelly's assistant and understudy for the better part of a year; but he assumed the secretaryship of the Ontario Division on January 1 when Dr. Kelly resigned to become the full-time assistant secretary of the Canadian Medical Association.

Harry Dunham, like Arthur Kelly, hails from Hamilton and he also served in the R.C.A.F. He has a natural flair for administration and the Ontario Division is to be congratulated on having appointed him to the secretaryship.

The Manitoba Division has appointed Dr. M. T. Maefarland, of Cold Lake, Alberta (a veteran of World War II), as its first full-time secretary. Before assuming duty on December 1, Dr. Maefarland spent a month with us at the central office. Unless we are poor judges of people, we predict that Manitoba and Maefarland are going to be highly pleased with one another, and we offer our hearty congratulations to the Division and to its new secretary.

The Saskatchewan Division and our "Secretarial Family" suffered a grievous loss in the death of Dr. J. G. K. Lindsay, of Saskatoon, whose sudden and tragic death a short time ago shocked us all. Although he had a wife and five children, Keber Lindsay felt it to be his duty to culist in the early part of the war and for

five years, most of it spent overseas, he served with great credit to himself and to his country. His place as Secretary of the Saskatchewan Division and Registrar of the College of Physicians and Surgeons of the Province will be hard to fill, but the Division is hoping to find a man who, like Lindsay, will have vision and ability and a strong desire to put service before self.

Not long ago, the Hunterian Society in England staged a debate on the motion "That the Uncontrolled Advertising of Patent Medicines is a Menace to the Public". In an audience of 100, the affirmative won by 92 to 8.

Two interesting observations stand out in the report of the meeting: (1) The main advocates on both sides were laymen, not doctors. (2) The leader for the negative put up the most ingenious if not the most convincing argument when he said that doctors should bless patent medicines because if they had to deal with all the people who frequent the chemists' shops seeking nostrums, the doctors' waiting rooms would constantly be cluttered up with people whom they thought they had seen for the last time and whom they certainly did not wish to see again. So, it may be, Doctor, that you would like to thank the patent medicine man!

It is interesting to note that the last published figure (of 1938) of patent medicine advertising costs for England was a little under £5,000,000. Quite a business earried on to make life easier for the doctor!

Have you made your hotel reservations for the Winnipeg Meeting which is to be held during the week of June 23, 1947? If not, might we suggest that you do so at once by applying to Dr. D. C. Aikenhead, Chairman of the Housing Committee, Medical Arts Building, Winnipeg. It is a matter of extreme regret to the Association that so many of our members were disappointed last year in that they were not able to secure accommodation at Banfi. The President-Elect and Mrs. McGuinness and all the men and women associated with them on the convention committees are doing their utmost to provide an attractive program and suitable accommodation for all our members who desire to attend the annual meeting in June, but it is very important that reservations be made early; so please make yours as soon as possible.

MEDICAL SOCIETIES

Montreal Medico-Chirurgical Society

The Pædiatric Section of the Society held a symposium on Poliomyelitis on December 6, 1946. The opening paper by Dr. A. R. Foley, epidemiologist for the Province of Quebec, reviewed the historical aspects of the disease, pointing out its world-wide occurrence. The 1946 epidemic in North America which had assumed such impressive proportions (there were over 23,000 cases in the U.S. alone) first manifested itself in Florida in February and spread north. In Canada sporadic cases began to appear in June, and by late July the epidemic was well established in the Province of Quebec, the peak being reached in mid-August. By the end of September it waned sharply, but a trickle of cases was still being reported even in mid-December. There had been a tendency in this epidemic towards an earlier date of onset and of reaching its peak. The average

age of the patients was five years.

Dr. Fred Smith commented on the bacteriological aspects. He felt that on present evidence we must conclude there was only one type of virus involved, compared, for example, with the influenza virus. The polio virus was one of the smallest known and its filterpassing capacity ruled out protection of water supplies by filtration. Nor was it affected by chlorine in quantities within practicable limits. Pasteurization also was not a protection against it. Man is the only known natural host and there is no intermediate mechanism of transmission. The route of infection presented vitally important aspects. There had been a change from the viewpoint which regarded the nasal passages as the only portals. The intestinal tract was now known to be frequently implicated, but other routes were possible, e.g., the tongue and dental sockets. Blocking the portals of entry was not practicable. However, as a corollary, surgical work such as tonsillectomy at the time of an

epidemic should be strictly limited.

As regards prophylaxis, no effective measure had yet been evolved. The use of modified virus was still in the experimental stage, although there was some slight indication that it might be of value. Antibody globulins did not seem able to protect the nerve endings and axones hence the abandonment of the serum treatment. It should be understood that the virus multiplied only in the neurone. The axone was only a pathway by which the virus ascended to the cell body. The rate of its travel had been measured experimentally and was found

to be about 2 mm. per hour.

Dr. F. W. Wiglesworth dealt with the pathological aspects. Our knowledge of the initial effects of the virus in the human is limited by the difficulty in obtaining the control of the cont ing tissues at the earliest stages of infection. So far, the earliest time after infection at which tissue had been examined was three days, and even then there was much secondary inflammation. However, from experimental work it was known that the initial effect of the virus was on the body of the neurone: the inflammatory collar which was such a familiar part of the microscopic picture developed as a secondary reaction. The term "anterior poliomyelitis" was misleading so far as it focussed attention on the anterior horn cells as the only point of attack. The posterior horn cells were also liable to be attacked, hence the frequency of pain in the early stages. The virus might also attack any part of the brain stem, witness the bulbar paralyses. The name of the disease however correctly indicated its destructive effects on the gray matter of the cord and brain stem. Emphasis was laid on the fact that the virus might take some time to die out of involved nerve

Dr. Alton Goldbloom spoke of some clinical aspects of the disease. His impression was that our knowledgo of treatment had not altered significantly in the last forty-five years. What we did nowadays was to apply whatever method of treatment seemed to be indicated by commonsense, and of course certain mechanical aids had been evolved. He implied that the treatment by

hot pack had not convinced him as having any great value. He commented on various points in diagnosis; how fever may be inconspicuous or even absent; how the so-called "dromedary" fever chart was characteristic and that the neurological symptoms usually appeared with the second rise, the word dromedary however being with the second rise, the word dromedary nowever being incorrectly used to refer to the two rises as being like the two humps of a camel, since that animal actually possessed only one hump. The infrequency of paralysis must be borne in mind. He was struck, in his experience of three major epidemics of polio, with the regularity with which certain errors of diagnosis were repeated during epidemic periods. Meningitis of various types always was amongst these errors and of course this always was amongst these errors, and of course this particular mistake could be understood. Amongst other errors he had seen a few cases of lead encephalopathy; osteomyelitis occasionally got into the special ward in error; neoplasms of the cord might also offer differential difficulties; and even scurvy with its pseudo paralyses. Dr. A. B. Cushing in discussion spoke from his very

full and extended experience. His impression was that in this epidemic, whilst it was by far the largest in Montreal in the last 35 years, the clinical aspects had been milder. The mortality was definitely lower, and the paralyses less extensive. He was especially impressed with the efficient manner in which the Montreal hospitals had handled a large, sudden influx of patients, at a time when both accommodation and staff were lacking. At the same time, as this kind of symposium served to emphasize, we still lacked definite knowledge about the disease, its prophylaxis and its treatment. The problem of carriers was a serious one

and presented great difficulty.
Dr. W. G. Turner in discussing the problem, thought that much saving could be effected by combating the human tendency to prolong physiotherapy beyond a reasonable recovery period, in the vain hope that somehow, somewhere, nerve tissue would be conjured up. This fallacy ultimately leads to disappointment, trial of other inadvisable treatments, waste of time, delay in physical adjustment and postponement of reconstructive surgery, in addition to great economic loss. Cases of poliomyelitis are not cured. They recover, and we

only assist in that recovery. Dr. R. R. Struthers wasted neither time nor words in making it clear that the meeting had not sufficiently emphasized the value of the Kenny treatment. In his opinion this was a definite addition to our method of handling the acute stages. In his experience, the hot pack treatment left the muscles in better shape for whatever surgical measures might be needed, and this view was supported by the surgeons themselves. He went on to say that he felt there was a tendency on this continent towards an excessively emotional approach to polio as a public health problem. In his work with UNRRA in Europe he had noted that whilst this disease was endemic in most countries on that continent, though perhaps with less striking epidemics than we had experienced, there was not the excessive public concern about it which had developed here. In conclusion he described one treatment which had come to his attention in Central Europe, namely that of auto-inoculation with cerebro-spinal fluid, but its value had not been assessed.

Ontario Branch Canadian Cancer Society

The Annual Meeting of the Ontario Branch of the Canadian Cancer Society will be held at the Head Office of the Society, 280 Bloor Street West, Toronto. Ont., on Friday, February 14, 1947, at the hour of 8.00 o'clock in the evening for the purpose of receiving reports, and the transaction of such other business as may properly be brought before the Meeting.

ISABEL OLIVER, Secretary

The Physiological Society of the University of Toronto

Professor R. A. Peters, head of the Department of Biochemistry, Oxford, spoke before the Physidenesis Society of the University of Toronto on the subject "British anti-lewisite" on December 2, 1946. The account, could be given as the subject has now been

released from security controls.

Professor Peters showed how a deficiency of theaven produces a defect in the enzyme system where concerned with the oxidation of pyruvic acid. The latter substance is formed in the metabolism of carbolevdrates and other substances and accumulates in the bloc I and tissues in thiamin deficiency. Lewisite and other arsenicals attack the enzyme system by combining with essential components of it, thus producing a lesion analogous to the "biochemical lesion" produced in thiamin deficiency. Investigations on the nature of the compounds which arsenical agents form with proteins provided the clues as to compounds which could possibly be of therapeutic value. This eventually led to the discovery of the antidotal action of the compound 2, 3-dimercaptopropanol which later became known as British anti-lewisite (BAL). Examples of the efficacy of BAL in treating lewisite lesions were given. BAL has proved to be valuable in treating cases of arsenical poisoning and also mereury poisoning, and may have other therapeutic applications.

Dr. Peters referred repeatedly to the work of his collaborators at Oxford, namely Thompson, Stocken, Sinclair, Philpot, Whittaker, Spray, Carleton, Holiday, Ogston and Wakelin, by whose combined efforts the work was brought to a successful conclusion. Dr. C. H. Best, the Chairman, and Dr. L. Young, who proposed the vote of thanks, spoke of the great importance of the contributions made by Professor Peters and his

associates.

J. CAMPBELL, Secretary

La société médicale des hôpitaux universitaires de Québec

Société médicale des hópitaux universitaires de Québec vendredi, le 22 novembre 1946.

CONTRIBUTION À L'ÉTUDE DU TRAITEMENT LOCAL DE TUBERCULOSE TRACHÉO-BRONCHIQUE. Jules Hallé.

L'auteur rapporte les observations de 21 tubereuleux pulmoniares, porteurs de localisations frachéobronchiques, sous traitement depuis onze mois pour leurs lésions bronchiques. Deux malades seulement ont semblé réfractaires au traitement. Le groupe majoritaire se compose de quatorze malades qui manifestent une amélioration notable de leurs vœis aériennes supérieures, vérifiée par la bronehoseopie en série. Ils accusent aussi une reprise de l'état général manifesté par l'augmentation du poids et une sensation d'euphorie indéniable. Les einq malades qui restent, se présentent actuellement avec une disparition com-Chez quatre plète de toute lésion macroscopique. d'entre eux, les examens des sécrétions bronchiques prélevées sur les éponges de nettoyage ont été négatifs; chez le einquième, ils sont positifs.

Le traitement local consiste principalement à aspirer les sécrétions avec l'aide du bronchoscope, à cautériser par la diathermo-congulation, plus souvent par le nitrate d'argent, en solution dont le titre varie entre 5 et 30%, et à appliquer un anti-hiotique de l'ordre de la pénicilline. L'auteur a associé aux cautérisations des instillations et des pulvérisations de pénicilline en solution. Il s'est in-piré du fait aequis de l'action de la pénicilline dans les bronchites chroniques non inberculeuses que Kny et Meade ont particulièrement mis

en évidence en 1945. Grace à l'emploi de la pénicilline, l'auteur a éliminé de la bronche, le plus grand nombre des agents pathogenes qui lui sont sensibles et qui contribuaient à

l'eraboration d'une lesion secondaire pour le moins nouve. Sin emploi serait déjù justifié par le seul fait que cette solution en yaut une autre, à titre d'agent il inhfiant les sécrétions bronchiques. La malade expectore plus facilement, tousse moins et réclame ce soulagement.

Filequence de la tuberculose du type de l'adulte CHEZ LES ENFANTS .- R. Desmeules. L. Rousseau, et Pl., Richard de l'Hôpital Laval.

Les auteurs signalent le taux élevé de la tuberculose ulcéro-caséeuse de l'enfant et de l'adolescent, dans leur milieu hospitalier alimenté par les diverses régions de la province de Québec. Il s'élevait en 1945 à 16.6%. La tuberenlose parenehymateuse évolue insidieusement la plupart du temps et elle provoque des destructions pulmonaires à type eavitaire avec

une latence clinique remarquable.

Elle obéit à la eure d'air et de repos dans certains cas d'excavation même chez les sujets très jeunes. A l'appui de cet énoncé, les auteurs exposent deux observations d'enfants de 20 et 23 mois, porteurs de lésions eavitaires qui ont guéri avec la méthode con-servatrice quoique l'un d'eux ait présenté en même temps des lésions osseuses et amygdaliennes de nature bacillaire. Cependant, il ne faut pas eraindre de prendre l'initiative d'une collapsothérapie mineure sous forme du pneumothorax ou de la phrénicectomie ou encore sous la forme associée lorsque les lésions sont stationnaires ou évolutives.

Deux observations illustrent les heureux effets de la thérapeutique associée chez une fillette de 10 ans

et chez un garçon de 11 ans.

PHLÉBITE PRÉCOCE CHEZ DEUX TUBERCULEUSES. - R. Desmeules.

L'auteur souligne la fréquence de la phlébite tardive et la rareté de la phlébite précoce dans le cours de l'évolution de la tubereulose. Il accepte l'opinion de la majorité des chercheurs qui affirment que le bacille de Koch est l'agent de l'inflammation veineuse rencontrée chez les tuberculeux. Deux observations de phlébite précoce sont rapportées.

L'évolution ultérieure plutôt favorable de la tuber eulose pulmonaire chez les deux malades observé-. contredit l'opinion classique qui veut l'aggravation rapide des lésions snive l'apparition de la phièbite. La plupart des auteurs affirment que la phlébite précoce est bilatérale. L'auteur note que l'inflammation veineuse fut unilatérale chez les malades qui font le

sujet de la communication.

ABCES PULMONAIRES: IMAGES PSEUDO-KYSTIQUES.—Louis

Observation d'une femme de 36 ans qui présenta. à la suite d'une infection puerpérale, plusieurs abcipulmonaires dont la flore microbienne était constituée de pneumocoques, streptocoques et staphylocoques. L'évolution vers la guérison de cette suppuration es fit dans trois mois mais après, l'on constata sur plusieurs cliebes radiographiques, des images annulaires ayant les caractères des kystes. Une radiographie pulmonaire tirée einq ans plus tard ne montre plus ces cavités constatées antérieurement.

Le diagnostic entre kystes pulmonaires, bulles emphysémateuses, était discutable mais par l'évolution ultérieure, il semble que ces images correspondaient à

une suppuration pulmonaire simple.

District Medical Society No. 2, Lethbridge

A meeting of the Lethbridge and district medical society was held in the Marquis Hotel, Lethbridge, on December 6, 1946. Seventy per cent of the doctors in the district were in attendance. Following dinner, business was discussed and two scientific papers presented.

Dr. P. Pilcher, of Calgary, presented a paper on "Reno-function tests". This was illustrated with

lantern slides. He emphasized several simple tests which could be carried out without difficulty by the general man, and without high cost to the patient.

Dr. Percy Sprague, of Edmonton, gave a paper on

"Allergy".

Following the scientific papers, Dr. Bramley-Moore, Secretary of the Association, outlined briefly the present situation in Canada regarding prepaid medical care. He discussed, also, the possibilities of obtaining a pathologist for the City of Lethbridge.

District No. 9

District No. 9 held its second meeting in Vegreville on Wednesday, December 4, 1946. This meeting was well attended. Following a supper at the Alberta Hotel, a scientific and business program was presented in the lecture room of the nurses' home.

Dr. M. A. R. Young, of Lamont, gave a paper on "Imperforate anus". Dr. N. J. Kuzyk, of Vegreville, presented a short instructive paper on "Sternal transfusion", and Dr. J. E. Bradley, of Wainwright, a paper on "Epidemic influenza". Dr. H. C. Wallace, of Wainwright, led the discussion on Dr. Bradley's paper. Dr. Percy Sprague, of Edmonton, the guest speaker, gave a paper on "Allergy".

Following the scientific papers, Dr. Reid gave a report on the recent Board of Directors' meeting, held in Edmonton. Dr. Bramley-Moore reported on the progress being made in the drafting of a new schedule of fees, and on the question of prepaid medical-

scrvices.

Light refreshments were served at the conclusion of the meeting.

MISCELLANY

The World Health Organization

The second session of the Interim Commission of the World Health Organization was held in Geneva, Switzerland, on November 4 to 13, 1946. Delegates were present from sixteen of the eighteen member nations of the Commission. The Canadian delegation consisted of Dr. T. C. Routley, General Secretary of the Canadian Medical Association, Dr. Harold Ansley of the Department of National Health, Ottawa, and Mr. J. Chapdelaine, Secretary of the Canadian Embassy in Paris.

The Honourable Brooke Claxton, Minister of National Health and Welfare, who had been in Europe attending the Paris Peace Conference, found it convenient to attend the first meeting of the Commission. He reiterated Canada's keen desire to do its full share in the development of the World Health Organization.

The main task of the Commission is the completion of the organization. According to constitution, the General Assembly is to be called within six months after the ratification of the constitution by twenty-six nations. At this session, it was reported that four nations had formally ratified the constitution, namely, the United Kingdom, China, New Zealand and Canada. The Commission was informed, however, that the matter was on the legislative agenda of a number of countries from whom ratification might be expected within the next six months. It is anticipated that the twenty-six necessary ratifications will be available by June, 1947, and that, before the end of the year, the General Assembly may be called.

Considerable discussion took place with respect to where the Assembly first should meet. Inasmuch as Brazil and China presented the resolution at San Francisco which prompted the United Nations to set up the organization, there is a good deal of support in the Commission for the first meeting to be held in Brazil. Canada seems disposed to support this invita-

tion and hopes that the organization will meet in this country in the not too distant future.

In order that no time might be lost in getting on with essential problems, the Interim Commission agreed, upon request, to assume all of UNRRA's residual health activities in Europe as of December 1, 1946, and to take over similar functions in Asia and the Far East in March, 1947. This undertaking, involving the absorption of staff and funds of UNRRA is indeed an important one which will require much careful handling. For the coming year, the funds available to the Commission for this work in Europe amount to one and one-half million dollars. A Finance Committee of five, composed of the delegates from the United States, China, the Ukraine, Yugoslavia and Canada, was appointed to budget the fund.

It is deemed advisable that the present agencies in the international health field be integrated with the World Health Organization as speedily as possible. These include, (1) the Health Division of the former League of Nations; (2) the Office International d'Hygiene Publique in Paris and (3) the Pan-American Sanitary Bureau. These matters provided the basis for long and involved discussion. It is of interest to report that, with respect to the first two, arrangements were completed for their integration within W.H.O.—number 1, immediately, and number 2 within the next few weeks. With respect to the Pan-American Sanitary Bureau, negotiations are proceeding and it is hoped that it will become an integral part of W.H.O. in the not too distant future.

Among other subjects which called for action with the least possible delay were the narcotic problem, malaria, yellow fever and other epidemiological diseases which menace the health of the world in whole or in part. Great care was exercised in laying the ground work for the selection of experts to deal with

all of these subjects.

The Commission must recommend to the first General Assembly where the World Health Organization shall establish its headquarters. Naturally, this is a matter of great importance and requires careful study. At the present time, the organization has its headquarters in New York. It was agreed that a branch office should be opened in Geneva, and as, and when, necessary in other parts of the world. After full discussion, it was decided to appoint a committee of five persons to study and recommend where the headquarters should be established. This committee consists of Mani of India (Chairman), Sousa Pascha of Egypt, Martin Boaz of Mexico, Evang of Norway and Routley of Canada.

The United Nations have authorized a vote of \$1,000,000 to the organization for the year 1947. A good deal of time was taken up by the Committee on Administration and Finance, of which Canada is a number, in consideration of the budget for next year.

Other problems discussed by the Commission were medical care for devastated areas, medical education, relations with other United Nations bodies and international bodies. It was a source of satisfaction to the Canadian delegation that reference was made to the advisability of the World Health Organization enjoying friendly relations with the World Medical Association in order that the viewpoint of the doctors of the world might be secured in connection with many activities in which the World Health Organization will be engaged.

The third session of the Interim Commission will open in Geneva on Monday, March 31.

League Advocates Premarital and Prenatal Blood Testing

In establishing the case of compulsory premarital and prenatal blood testing for syphilis, the Health League of Canada points out that of approximately 265,000 births in the Dominion annually, there are about 500 reported cases of congenital cases of syphilis.

The League emphasizes that the vast majorit, of these cases of congenital syphilis could like the avoided through premarital and prenatal blood test- fr is emphasized that about: 75% of women who is r

children contracted the disease in wedlock

So far, only four Canadian province the tags Saskatchewan, Manitoba and P.E.I.—have enquerapremarital blood test legislation in effect, while has compulsory prenatal examination legislate in Chirales however, has permissive legislation in regret to the natal blood testing. Through this enaction, even expectant mother may obtain one free medial exciting 4:17 tion on application in a prescribed form * medical practitioner.

Health Week in February

National observance of Health Week in 19+715-1 -n set for the week beginning Sunday, February at is announced by the Health League of Carra whom annually sponsors the event in co operation with a first ments of health and education throughout the Domini a

National Social Hygiene Day, a feature of the week's observance will fall on the Wednesday, February 5. This is an annual international event observed in both Canada and the United States.

Medical Grading in the Army

This new system of medical grading in the Army is causing a lot of bother. The "good enough-for-myfather" types are asking what was wrong with the old one. ("We won the war with it, didn't we?") The series of initial letters, each one neatly grading a bodily function, from feet (L) to eyes (EE-one for each eye), proves very confusing to those who can't remember whether L stands for Locomotion or Liver and S for Spleen or Stability. Our chief trouble has been naming the business of doing it all. Shall it be pulheemising or just plain (very plain) pulheeming. Neither is very euphonic, but pulheemising seems to have won. It sounds more distinguished to have been pulheemised than merely pulheemed. (The s is dropped by tacit agreement; there must be no suggestion of instability about the method even if there is about the subject.)

Like many other innovations this one has altered the meanings of a number of words. Thus a handsome profile no longer refers to a Barrymore physiognomy but rather to an unbroken series of 1's. The symbols largely remain a mystery to the uninitiated. A senior officer inquired whether it was the P or the U which recorded the results of his urine examination. Perhaps our saddest case was the Pioneer found waiting outside the M.I. room carrying a large envelope who, when asked his business, plaintively told us that he had "come to be pulverized"!—"In England Now", November 2, 1946.

Sex Hormones as a By-product of the Paper Pulp Industry

In the manufacture of sex hormones and certain other substances the pharmacentical industry has hitherto employed almost exclusively cholesterin as the basic material, but this product, which is extracted from, inter alia, the spinal cord of calves, is at present difficult to obtain. The Swedish Pulp Company has therefore ontain. The Swedish Pulp Company has therefore started recently the manufacture of phytosterin from Swedish pine—a product that seems to be able to replace cholesterin on a considerable scale. For the past 8 months a large scale plant has been in successful operation at the company's sulphate mill at Ostrand, in Northern Sweden. Thus one more link has been forged in the long chain of chemical products that are obtainable out of the Swedish forests

One of the by-products obtained in the minufacture of sulphate pulp is the so-called phytosterin group.

which stres as a laste material for the manufacture of a series of useful remedial agents, among others normales. It has long been known that the phytosterin to through these products in a pure state and on a large The problem has been a subject of research in it lil ratio es of the Swedish Pulp Company for many veats, and at the beginning of last year a plant for 112. le production was started. The methods of manuis in employed have been worked out by the working up of the phytosterins into hormones and other are to ments has been done at A.B. Pharmacia, in Stekholm, as well as by a number of major pharma entral arms abroad.

The phytosterms belong to the most highly refined m what's so far extracted from wood. The consumption of these high-grade substances is relatively limited, e-pocually if compared with the quantities which it is technically possible to produce. Moreover, the transformation of phytosterins into hormones has proved to he an extremely involved process requiring extensive and intricate experimental researches at the pharma-ceutical works. The Company expects that its one mill at Ostrand will be able to cover the requirements of the entire world for a long time to come.

CORRESPONDENCE

Transfusion in Erythroblastosis

To the Editor:

I am extremely sorry if, quite unwittingly, in my Blackader Lecture, I misrepresented Dr. Wiener's views on the prevention of sequelæ of acterns graves by the use of Rh negative blood. My statement was based upon the following sentence from a paper by Dr. Whener which appeared only five months before my lecture. (Am. J. Dis. Child., 71: 14, 1946.) "Incidentally the suggestion that modern transfusion therapy may serve only to save infants for a worse fate-mental deficiency —is therefore misleading; in my experience every one of approximately 20 infants cured by such treatment has developed into a perfectly normal child.

I assumed that by "modern transfusion therapy" was meant the use of Rh negative blood or possibly of washed maternal red cells, but I now gather that by this phrase Dr. Wiener meant "exsanguination trans-fusions with Rh negative blood". "Exsanguination transfusion" is not a modern method because to my certain knowledge it was practised at the Children's Hospital, Toronto, over twenty years ago, and I raide use of washed maternal red cells during the period before adequate supplies of Rh negative blood were available. Actually in this paper Dr. Wiener rever mentions the use of evanguination transfusions. Moreover, in a subsequent paper (Art. J. D v. Child., 71: 25, 1946) of which he is coauthor, his methods of treatment are described but exanguination transfusion is only mentioned twice thus: first, "the original plan was to perform a complete exanguination trensferior but this plan was not carried out because of the antispated technical difficulties"; secondly, "feesanguires" on transfusion . . . is a formidable procedure to carry out". The paper (.im. J. Die, Child., 68: 317, 1944) to which Dr. Wiener refers in his letter to years containing the suggestion of "the use of exanguiration transfusions" does so in these words: "It is theoretically possible that . . . a complete exsurguination transfusion entailing the removal of all left a small quantity of the infant's blood and its replacement by The negative blood at firth or as soon thereafter as possible may some to prevent a lethal outcome", but in a footnote it is stated that an actual ex-anguination transfusion was subsequently performed on a premature Mongolian idiot.

It is only in two papers published since my lecture was given that Dr. Wrener has given details of his present technique which involves the use of heparin and descriptions of two eases in which successful results were obtained as a result of exanguination transfusion with Rh negative blood. In the first of these papers (J. Lab. & Clin. Med., 31: 1016, 1946) the method was tested on a Mongolian idiot and the conclusion reached that it is "a procedure which may be indicated in severe cases of icterus gravis". In the second paper, kindly sent to me by Dr. Wiener and which has just been published, a second successful case is described (Bull. Adelphi Hosp., 5: 2, 1946).

Even after reading this latest paper it is difficult

to be sure how many times the technique has been used. because the only other case discussed is described as a Mongolian idiot and may be the one to which I have just referred. Actually, therefore, I can only trace records of three cases in which Dr. Wiener used exanguination transfusion, two of which have been published since my lecture, and I think, therefore, it is obvious that there were sound grounds for interpreting "modern transfusion therapy" in the sense that I did, but I am glad to have the opportunity of giving a more complete account of Dr. Wiener's views as expressed

in his publications.

It seems to me, however, that in his letter Dr. Wiener. makes in effect the same statement as the one I attributed to him since he says, "By exsanguination transfusion kernicterus can be prevented provided that this is carried out early enough?. Apart from the fact that failure to prevent kernicterus in any given patient could be said to be due to the fact that exsanguination transfusion was not carried out early enough. I produced evidence in my lecture which I thought, and still think, proved my thesis that the changes in the liver and brain which precede the bile-staining of the brain cells (kernicterus) are initiated before birth, although they may increase after birth. They therefore cannot be prevented by treatment even if this is initiated immediately after birth. In my experience of over 250 cases, kernicterus and its sequelæ—extra-pyramidal isidite mouth defining at the baye ret bore dimining. rigidity, mental deficiency, etc.—have not been diminished by the use of Rh negative blood even when, on rare occasions, exsanguination transfusion with Rh negative blood has been performed.

I would like to discuss the pathogenesis of kernicterus but this letter is already too long; later, however, Dr. Baar and I hope to write an article giving our views on this problem.

LEONARD G. PARSONS

58 Calthorpe Road, Five Ways, Birmingham, 15.

A Suggestion Re Herniorraphy To the Editor:

A few years ago I had the unpleasant experience of having to take apart a perfectly good repair of a large inguinal hernia to repair a small femoral hernia which was first noticed shortly after the repair of the inguinal hernia. I had a rather guilty feeling that it might have been present at the time of the other operation and decided that I would not be caught again. Accordingly at each subsequent hernia operation, after the sac was isolated and opened, I would pass my finger in through the sac and palpate the femoral eanal from within. It is very easy to feel both femoral rings in that way.

About a year ago, when engaged in repairing another large inguinal hernia, in doing this check-up, the finger could be passed well through the femoral canal. It was quite a simple matter to bring up the femoral sac and repair both defects at the same time.

I have not seen any reference to this idea in read

I have not seen any reference to this idea in reading the ordinary elinical journals and pass it along for the benefit of others engaged in this work. If it has already been described it will bear repetition. 132 Norfolk St.,

Simeoe, Ont.

R. B. HARE

Methods of Testing Hearing

To the Editor:

My paper on "Practical methods of testing hearing, etc.', published in the Canad. M. A. J. of December, 1946, made a claim to originality in use of the 4-A audiometer which I regret to report is not correct.

Stacy R. Guild has informed me today that the said method has been in use in the Otological Laboratory of the Johns Hopkins Hospital since 1928 and that the late C. C. Bunch also used the same method.

D. E. S. WISHART

170 St. George St., Toronto 5, Ont.

A Code Word for Rating Patients To the Editor:

Referring to the article in the November issue on "Rating" by Drs. Willis and Kalant, I would like to suggest as the code word "PULHEMSTARKINGOD".

It would seem to me that a meaningless word would be preferable and that with this suggested word there is retained the seven letters with which we are all familiar. In addition the "M"-Mentality is retained and not grouped under the "N"-Neurological. The remaining portion of the word—tarkingod—is really only a sub-division of the "P".

RATING (PULHEMSTARKINGOD)

P. - Physique as a constitutional unit

U. - Upper limb and upper back

L. — Lower limb and lower back
H. — Hearing and ears
E. — Eyes and vision

M. — Mentality
S. — Stability, emotional
T. — Teeth

A. — Arterial system including the heart'

R.—Respiratory
K.—Kidneys, the G-U system
I.—Intestine, the G-I tract

N. — Neurological system
G. — Glandular system, internal and external secretion
O. — Hæmopoletic and lymphatic systems

D. — Dermatological system, skin, hairs, nails

Grade 1, fit; grade 2; mild disability; grade 3, moderate disability; grade 4, marked disability; grade 5, ùnfit.

The same system of grading would be followed. A further refinement could be made when the defects present are of a remedial nature. In these eases, in place of using the cardinal number, one of the first five letters of the alphabet would be used instead. Thus, a hernia, which would ordinarily be classified as 3, by this system would be elassified as "C".

This is merely submitted for discussion in the hopes that some acceptable form of rating will erystallize out of the discussion. I do believe that when such a system is used, it will be of great value in classifying men in their pre-placement examination for

industrial occupations.

AUSTIN EVANS

December 23. 1946. 309 Avenue Road. Toronto 5.

Medical Journals for Czecho-Slovakia

To the Editor:

If at all possible, would you be so kind as to send as many issues as you have to spare-of your Journal-

Univerzitny Profesor M. V. Dr. Karol Matulay, Psychiatricka Klinika, Lekárska Fakulta,

Slovakian University. Bratislava, Czeeho-Slovakia.

As a Slovakian friend of mine. Dr. Matulay recently wrote to tell me how tragically short of medical literature, supplies and equipment his suffering Slovak people were! Besides his native Slovak, Dr. Matulay speaks English and French, as well as a number of other languages, quite well. I am sure that he will appreciate any aid you may give him, to help his beloved Slovakian nation.

(Mr.) Fero Zeman

307-12th St. "C" North, Lethbridge, Alta.

N.B.—Slovakians are not Czechs, as Czechs are not Slovakians. The language of Slovakians is Slovak

not Czech, nor Hungarian.

[We pass on this appeal to our readers. Any such gifts of journals should be sent direct to the address given.—Editor.].

SPECIAL CORRESPONDENCE

The London Letter

(From our own correspondent)

THE PLEBISCITE

The New Year opens inauspiciously for the medical profession. No one feels really happy about the result of the postal ballot of the doctors of the country on the question of negotiating with the Minister of Health over the earrying into effect of the National Health Service Act. The striking feature of the ballot is that 81% of civilian doctors should have participated; of these 54% voted against negotiations. An analysis of the figures shows that 56% of general practitioners voted against negotiations, whilst in the ease of whole-time members of voluntary hospital staffs, whole-time teachers and whole-time research workers only 41% voted "no". In other words, it is the general practitioners who have come out most strongly in opposition to the new Act.

The Council of the B.M.A. has taken immediate action and is submitting a resolution to a special meeting of the Representative Body to be held on January 28, to the effect that the Minister of Health should be informed that the Negotiating Committee is unable to enter into negotiations with him on the

Regulations to be made under the Act.
Whatever the upshot of it all may be, one fact stands out clearly above everything else: that Parliament has decreed that the new service should come into force—and by a definite date. Whether the country may ultimately regret the decree of its elected representatives is another matter that, at the moment, is only of theoretical interest. The Minister must carry out the mandate of Westminster, and, if the B.M.A. will not assist him in his task, then he will be compelled to turn elsewhere for his advisers.

THE GOLDEN AGE OF CERTIFICATES

Possibly one of the considerations that have led many family doctors to vote against negotiations with the Minister is the orgy of certificate signing in which they have been plunged since 1939. Certainly one must have considerable sympathy with them in the amount of time they have to devote to this soul-destroying "pastime". Things have indeed come to a strange pass when, as recorded recently in the British Medical Journal, a father wanting to buy a tricycle for his small son, is informed by the shop assistant that he could only have it an appropriate of a medical corribourt.

This legacy of the war is still with us, and, as the British Medical Journal points out, there is a tendency on the part of shopkeepers to demand medical certificates for articles, such as vacuum flasks, that are in short supply. When it is realized that medical certificates are required officially for priority supplies of milk, eggs and soup; special adjustments of food rations; surgical corsets; extra fuel for invalids, and extra petrol for invalids it is not difficult to convenient the grant difficult. invalids, it is not difficult to appreciate the general

practitioner's reluctance to favour any step that may plunge him deeper into the mire of certification. Officialdom may adore certificates, but it is to be hoped that. whatever the shape of things to come may be, the doctor of the future may be left a few moments in the day in which he can practise the gentle art of medicine.

THE "BRITISH MEDICAL JOURNAL"

The resignation of Dr. Gerald Horner from the editorship of the British Medical Journal, which took effect at the end of December, brings to an end an asso-ciation that has lasted for practically thirty years. Entering medical journalism as assistant editor to The Lancet in 1911. Dr. Horner joined the staff of the British Medical Journal after the 1914-18 war, and in 1923 he succeeded Sir Dawson Williams as editor. During the next ten years the journal went from strength to strength. An already high standard was enhanced and at the same time the format of the journal was progressively improved. It is no easy task to be editor of a journal which is both a scientific journal and the official publication of an association, but these two interests Dr. Horner co-ordinated with consummate skill. Then came the outbreak of war in 1939, with all its difficulties and complications; but once again Dr. Horner rose to the occasion and, in spite of drastic paper restrictions, shortage of staff and all those hazards of war to which London was exposed, he continued to bring out every week, with unfailing regularity, a journal of which he had every reason to be proud.

He carries into his retirement the best wishes of thousands scattered throughout the Empire. No one has done more to maintain those high standards of which English journalism is so rightly proud. He is succeeded in the editorial chair by Dr. Hugh Clegg, who has been

deputy editor since 1934.

THE BRITISH EMPIRE CANCER CAMPAIGN

The Twenty-third Annual Report of the British Empire Cancer Campaign, covering 1946, which has just been published, is a striking commentary upon the progress in research that has been maintained in spite of all the difficulties of this post-war era. Unfortunately it has not been possible to include contributions from affiliated organizations, such as the Canadian Cancer Society, but it is hoped to be able to include these in next year's report. The field that has been covered is a rick one including both scientific and clinical research. a wide one, including both scientific and clinical research.

One of the most impressive advances is that in the

field of nuclear physics as applied to cancer research. Reports are included of two such investigations, one using radio-sulphur and the other using radio-phosphorus. In the clinical sphere, the most outstanding item is the report indicating that the results of radium therapy in the treatment of cancer of the uterine body now compare favourably with those of operative removal. The volume of research work on cancer is now such that The volume of research work on either it has been found necessary to undertake the publication of a special quarterly journal, and the hope is expressed in the Report that the first issue of the new British Journal of Cancer will be published in the Spring.

WILLIAM A. R. THOUSON Spring. London, January, 1947.

The Holland Letter

(From our own comespondent in Holland)

GREAT MEDICAL CONCRESS AT AMSTERDAM

During the second half of September a great congress for public health was held at Amsterdam; 1,200 delegates, physicians, social workers, officials, nurses attended the different meetings as representatives of their unions, and discussed the influence of the war on the development of public health.

Princess Juliana opened the congress with a speech in which she remarked that physical and moral health had suffered greatly by the war and the German occupation. It will be a great but difficult task for the congress and for all, concerned with public health, to find the means and ways to better public health and give the Dutch people more happiness, said the Princess. Especially in the former colonies physicians and nurses are necessary in view of the bad health conditions of the population.
Dr. L. C. Kersbergen, secretary of the congress,

made a speech in which he gave a summary of public health before, during and after the war. He related the period of famine during the winter of 1944-45. In February, 1945, only 340 calories were given daily, a number decreased since October, 1944, when the food ration contained only 1,500 calories. For 22 weeks the Dutch population received 590 calories daily.

General and infantile mortality before the war, the lowest of the whole world, increased considerably during the occupation. Tuberculosis increased by 90%. General mortality in the winter of 1944-45 by more than 200%. The number of men, who died during the period of famine was three times the number of

Venereal diseases, tuberculosis, infectious diseases like malaria are now frequently found amongst the Dutch population. Dr. Kersbergen proposed that the whole Dutch population should be examined radiologically, as being the only way to find out all cases

of tuberculosis.

The Minister of Social Affairs, W. Drees, whose department is charged with public health, told the meeting that the government had bought during and after the war all the medicaments and instruments, she could find in foreign countries. He related the help offered to the Dutch population, after the liberation, by the Canadian, English and American authorities of the army and civil affairs. General mortality is now decreasing, although figures are not as good as before the war. The birth rate is decreasing.

Fifty-ninc orators discussed in several committees

problems such as eugenics, food and rationing, help for victims of war and deported people, problems of moral insanity, antenatal and prenatal care, etc.

Dr. H. P. J. Koenen discussed the questions of the academic education of physicians. More general philisophy and psychology is wanted in the teaching of students. More eourses for graduate physicians are necessary than are now available. For nurses a better salary is wanted, especially for district nurses. General propaganda in the families will do much to help the doctor and the nurse in their work for better social and hygienic conditions.

An exhibition is now held in Amsterdam, where tables, figures and photographs give an idea of the develop-ment of public health in Holland during the last years. The delegates of the congress assisted at the opening of

this exposition.

HOUSING POLITICS IN HOLLAND

The Dutch government has published a plan for reconstruction and house-building. It will be 1958 before housing conditions are equal than those of 1939, under condition that 70,000 houses are built yearly. Unfortunately this year about 10,000 houses only can be built, because material is not available in sufficient quantities.

DEVELOPMENT OF THE DUTCH POPULATION . AFTER THE WAR

The Dutch population amounted to 9,298,889 on January 1, 1946, e.g., 279 per square kilometer. The birth rate was 22 per 1,000 inhabitants in January, 1946, (during 1936 to 1939 only 20.1; per 1,000 inhabitants) of the months January till Juneybgkqj).-shrdlucmfwyp increasing to 33.1 in June, 1946.

Mortality decreased, amounting to 9.9 per 1.000 inhabitants in the course of the months January to June, 1946 (during 1936 to 1939 mortality was even lower, 9.7 per 1,000 inhabitants).

Though figures for general mortality and infantile mortality (45.5 in the period of January to June. 1946, against 43.9 in 1936 to 1939) were better before the war, it appears that the bad influence of the war on public health is now going to disappear. . J. Z. BARUCH Amsterdam · Z.

CANADIAN MEDICAL WAR SERVICES

MEDICAL OFFICERS STRUCK OFF STRENGTH OF THE R.C.A.M.C.—ACTIVE FORCE **NOVEMBER 1946**

(Previous sections in January, March, April, May, June, July, September, October, November and December, 1945 and January, March, May, June, July, August, September, October, November and December, 1946 and January, 1947.)

SECTION LXXXVII

Name Address Date state	7	,	111	Dete struction	strength
MacPherson, R. H., 325 Mountain Rd , M "		~	M i I	, FI	13 9 46
N.B.	1	~		76	10 10 46
Melnyk, D., 11321-81st St., Edmonton	Ţ1	-		Marie,	
- Menzies, M. A., 5463 Vine St., Vancourer		•		-	10 7 46
Miller, W. R. A., 47 Regal Blvd., Toronto		~	,]	A.e. Toronto	1: 10 46
Milne, M. N., 785 Queen St. W., Toronto	~ 4	~		Ace. Elm inton	4.24.45
Mooney, J. K., Peakes, P.E.I.		~] ' ' K-	I h lie Montreal	11 10 40
Moss, G. W. O., 374 Glebeholme Blvd 7	4		\int	ra St. Toronto	1 10 46
Muldorfsky, R., 123 Beatrice St., Toror		~	1 L Ri		27 9 46
Myers, H. A., 805-8th Ave., Calgary		~		rklam St, Toronto	16 16 46
Neil, R. B., 10715 Saskatchewan Drive		_	in h _17. Ret	allack St., Regina	24-10-46
Edmonton		, ,	41 1 Pax 109.	Cranbrook, B.C.	13 9 46
Nolin, G. H., Val Brillant, Matapedia Qu		_	i · F 2 Bosten	Ave. Sherbrooke. Que	3 19 46
Oberwarth, U. E., Women's General II			1 L J. ~ R,	114312 St. Valher St	•
Montreal		(1 13424		54 10 40
O'Neill, J., Font de Quebec, Que	_ +	3 ر	1 (H. 172 Wel	lington, Kingston. Ont.	22 10 46
Page, N. A., 77 Clifton Rd., Toronto		37 -	- H M. Montreal		19-10 40
Parrott, J. E. R., 26 Osborne Ave, Toron	_ 14	A = B	M B. 437 Colleg	e Ave., Winnipeg	2546
Polson, R. A., 661 Riverwood Ave, Ferrice		Watt	z, G. O., Toronto Ge	eneral Hospital, Toronic	25 9-46
' Manitoba	- ±1	H ein	carten, M. H., 9 F	Rolyat St., Toronto	23-10 46
Prowse, W. C., Taber, Alta.	1 3 40	Wales	m 1 P 219 Ca	sgrain Place, Windsor	
Pugh, D. S., Kingston, Out.	271 40)nt.	25.44	3 10 46
Reich, C. J., Prince Rupert, B.C	5 10 40	****)#1.	onth Park St Halifar	9 10 46
Roy, D. G., 1535 W. 12th Arc., Vancon, et	110 46	Wini	eia, G. A., 131 St	outh Park St., Hahfar	-
Rubin, I. C., 4343 St. Urbain, Montreal	-11946			ton Ave., Mount Dennis	3 10 46
Rublack, A. E., 93 Myrtle Ave., Yorktown	l. 9 10 46	(Ont.		,, 10 10

ABSTRACTS FROM CURRENT LITERATURE

Medicine

The Treatment of Hyperthyroidism with Radioactive Iodine. Chapman, E. M. and Evans, R. D.: J. Am. M. Ass., 131: 86, 1946.

Since the discovery of induced radioactivity in 1934, radioactive isotopes have been used extensively in physiological experiments especially in investigating metabolic problems. The possibilities of their nse as therapeutic agents are just beginning to be explored. This article reports on the results of treatment of 22 patients with hyperthyroidism using radioiodinc. The work was carried out by the Thyroid Clinic of the Massachusetts General Hospital in collaboration with the radioactivity centre of the Department of Physics of the Massachusetts Institute of Technology. This collaboration is a reflection of the increasing complexity of medical research.

The radioiodiue used was prepared by deuteron bombardment of metallic tellurium in a cyclotron. This was given to the patient by mouth, in a sodium iodide solution containing both the 12-bour and 8 day isotopes. The dose varied between 14 and 79 millienries. The method of calculating the tissue dose in roentgens is elaborated, and it is shown that 90% of the total radiation is delivered within the first 36 hours after administration. A dose of 14 millicuries results in 3,160 roentgens being delivered to the thyroid in the first 36 hours. Urinary exerction studies of radioactive iodine were made to estimate the efficiency of radiation.

Of the 22 patients, 14 responded well to a single dose of radioiodine: three were given 2 doses and five received 3 doses. In 16 cases, thyrotoxicosis was well controlled; 2 remained mildly thyrotoxic while 4 developed signs of myxedema. The radioiodine produced transient radiation sickness in 6 patients. Subsequent hisper of two cases showed fibrosis of the gland. The authors note that patients who have not responded well to other forms of treatment (thyroidectomy and iodine administration) responded well to radioiodine.

The authors conclude that "we believe that therapy with radioactive iodine can be added to the growing list of medical methods for the control of thyrotoxicosis". The article should be read in its entirety by all those concerned with thyroid disease.

Devotas Findlay

Sudden Death in Rheumatic Fever. Griffith, G C and Huntington, R. W.: Ann. Int. Med. 25: 28:, 1946.

Over a period of 18 months at the Rheumath Pever Unit of the U.S. Naval Hospital, Corona, California 7,165 rheumatic fever patients were observed in Period these patients 13 deaths occurred or which with instances of sudden death in the course of mild recommend fever in men aged 28, 22, and 20 years.

Case I was convalescent from rheumatic rever. The only cardiac abnormality was a faint apical system murmur heard first in the 7th month of convalescence. During the 9th month following ton-illectomy under novocaine, patient walked back to the ward feeling well, and one hour later suddenly became pale, cyanotic, pulseless and died. The main pathological findings were, base of aorta greatly thickened; both coronary arteries and main branches were greatly thickened and lumen appeared almost oecluded. Microscopically, there was an accumulation of relatively homogeneous extracellular material in the coronary arteries and at the base of the aorta, located largely intramurally. Aggregates of large Aschoff-like cells were noted in some areas.

Case 2 did not have elimically active rleumatic fever but had been returned from a period of streamous combat duty following the finding of acrtic systolic and slight acrtic diastolic murmurs. While under observation, he suddenly fell out of a caace in which he was paddling and, though known to be a strong swimmer, he sank to the bottom irrimediately. Tricuspid leaflets were fused and retracted; mitral leaflets were greatly thickened, fused and the free edge was hard; acrtic cups were thickened and curled. There was a soft discoloured area in the anterior wall of the heart, and the anterior descending branch leading into the area appeared occluded by ordema of the arterial wall. Microscopically there was considerable focal ordema in the coronary arteries; north showed marked cellular accumulation.

Case 3 had active requestic fever with recurrent precordial pain and constantly changing T wave pattern. Eight bours before suiden death, the precordial pain greatly increased. The left coronary was very rough narrowed by an atteromatous plaque near its origin; its descending branch appeared obliterated by a soft mass; left centricular wall showed areas of fibrosis suggesting old myocardial infarcts. Microscopically, myocardium was thickly strewn with Aschoff bodies; coronary changes were similar to those in case I.

It is felt that a rheumatic diagnosis is justifiable in these cases, particularly in view of the valvular changes in case 2 and the myocardial cell groups in case 3. It is suggested that the sudden death is due to an acute anaphylactic coronary angiitis superimposed upon a low-grade rheumatic carditis.

A. L. Johnson

Methæmoglobínæmia: Treatment with Ascorbic Acid. Carnrick, Lieut. M., M.C., U.S.A. and Klein, T.: Arch. Int. Med., 78: 296, 1946.

Where cyanosis cannot be explained by cardiac or pulmonary discase, it may be due to an increased con-centration of methæmoglobin. The possibility of the presence of this derivative in the blood should always be kept in mind. Sometimes a spontaneous formation occurs, so that an examination of the blood for this should always be done where the cause of the cyanosis has not been certified. This condition is frequently accompanied by gastro-intestinal disturbances—such as long standing diarrhea.

The response to treatment of methæmoglobinæmia with ascorbic acid is very striking: all clinical symptoms disappear quickly. Administration can be by vein if

emergency demands.

Patients suffering from this disease may come into hospital complaining of pain in the abdomen, diarrhea and vomiting. Their temperature may be moderately elevated, they may have a loss of vision in one or both eyes. It has been suggested that toxic products in the intestines might be absorbed and produce the above condition. A level of 3 grams of methæmoglobin per 100 c.c. of blood will produce symptoms.

Methylthionine chloride has had some success in the treatment, partly by chemical changes produced in the blood, partly by stimulation of the respiratory centre. Ascorbic acid is much better.

P. M. MACDONNELL

Tuberculous Meningitis Treated with Streptomycin. J. Am. M. Ass., 132: 375, 1946.

Tuberculous meningitis is believed by most observers to be a uniformally fatal disease, especially in young infants. About sixty cases have been reported in the literature that ended in a cure. However, in many of them the authenticity of the diagnosis is questionable. In the case reported here there was a history of con-

tact, a positive tuberculin test, and hilar gland enlargement. Examination of the cerebrospinal fluid gave the characteristic chemical and cytological findings, and smears on admission showed acid fast bacilli. Guinea pig inoculation however was negative for tuberculosis. Unfortunately the animal was not inoculated until two Unfortunately the animal was not inoculated until two days, after streptomycin therapy was started. It is conceivable that enough of the drug was in the spinal fluid to inhibit the growth of the organism in the guinea pig. This action of streptomycin in the guinea pig was demonstrated by Feldman, Henshaw and Mann. Treatment was continued for 57 days and a total of 24,000,000 units of streptomycin was given intramuscularly, and 2,800,000 intrathecally (65 taps).

Five months after the onset the natient was clinically

Five months after the onset the patient was clinically well but showed a pleocytosis of 140 cells, mostly lymphocytes. He was said to be active and mentally PRESTON ROBB

The Effect of Anticoagulants on the Penicillin Therapy and the Pathologic Lesion of Subacute Bacterial Endocarditis. Priest, W. S., Smith, J. M. and B. McGcc, C. J.: New England J. Med., 235: 699, 1946. Bu. The anticoagulant drugs, dicumarol and heparin, were Cami as adjuncts to penicillin therapy in 15 of 34 Clute, entive and unselected cases of subacute bacterial Cockb arditis. There were 12 deaths in the series, 10 of Cusson were autopsied. There was no evidence that the Davis, Equiants were of any value in the treatment of Donahoc, as and the authors doubt that they had any Downs, Win preventing major embolism. Two deaths Eckert, L. com hemorrhage ascribed to the effect of Ewert, E. Let medication.

Forsberg, An heaterial endocarditis should be treated by

Forsberg, A., bacterial endocarditis should be treated by Fraser, R. H., more units of penicillin daily continued Freeman, V. J.,

for an adequate period. Such therapy has resulted in apparent cure of the last 15 cases treated in this series, none of whom received anticoagulants.

NORMAN S. SKINNER

Surgery

Management of Injuries to Stensen's Duct. Newman, S. C. and Seabrook. D. B.: Ann. Surg., 124: 544, _[1946.

Stenson's duct is 6 to 7 cm. long, and 4 to 5 mm. in diameter. Its walls are fibrous, thick, and do not collapse. The papilla is a complex mechanism. It functions as a sphincter and a valve. Treatment of parotid duct fistulæ may be divided into 3 categories depending on whether the lesion is in the glandular area, over the masseter muscle, or anterior to the masseter. Fistulæ in the glandular area are best treated surgically, if connected with a main tributary. If they arise from minor tributarics treatment may be (a) leave alone as spontaneous healing may occur, (b) cauterization, (c) roentgenotherapy, (d) excision of the gland, (e) avulsion of the available transparent. of the auriculotemporal, or section of the glossopharyngeal nerve. Non-operative treatment recommended is (a) allow sufficient time for spontaneous healing, then (b) cauterize, or (c) destroy function by roentgenotherapy.

Fistulæ over the masseter would appear to be the commonest. Recent laceration should be sutured at once, using the technique described below. Chronic fistule should be treated surgically. Operations using flaps of mucous membrane to create a new duct are unnecessarily complicated and involved. Fistulæ anterior to the masseter are rare. It is essential that the papilla be preserved, because of its protective action, in any

attempt at repair.

Preoperative routine includes (a) lipiodol injection into the fistula followed by radiography, (b) daily dilation of the oral opening for about ten days, (c) 25,000 units of penicillin intransscularly every 3 hours begin-

ning 24 hours after operation.

Intratracheal affresthesia is ideal. At operation the papilla is dilated. A flexible probe is inserted as far as possible. A second probe is introduced through the fistula and pushed anteriorly as far as possible. An incision is made through the cheek, using the ends of the probes as landmarks. Branches of the 7th nerve should be avoided. By manipulation, or by excision of scar, the two ends are approximated. No. 10 twisted tantalum wire is pulled from the fistila, along the duct, until it presents in the mouth. The proximal end of the twisted wire is inserted into the proximal portion of the duct. The fistula and wire are carefully closed with fine catgut, as many layers of covering as possible. The distal end of the wire is brought out the mouth and fastened to cheek with adhesive or a stitch. It is moved slightly back and forth daily.

Postoperative care consists in (a) continuing the penicillin, (b) pilocarpine hydrochloride, 10 mgm. three times daily, is started the day after operation (c) 1 gm. of ammonium chloride is given with each meal for 3 days, (d) and a minimum of 3,000 c.c. of fluids daily, taken with meals, is advised. Oral hygienic measures are most important. If necessary, the oral papilla should be dilated daily. It is not unusual to have the fistula reopen for a short period. If the wire is still present the fistula will close. The wire should be held in position for at least three weeks. All fistule operated upon by the authors, using this technique, were successfully STUART GORDON closed.

Acute Fulminating Ulcerative Colitis with Massive Perforation and Peritonitis. Chisholm, T. C.: Arch. Surg., 53: 462, 1946.

The author records five instances of this rare condition with an additional one of his own, together with a review of the literature on this subject.

The patient was a woman, 43 years of age, who. when admitted to hospital, was in profound shock, and gave a history of having had crampy abdominal pains

for a period of four weeks, prior to entry to he stall followed by diarrhoa, weakness and a here trade to and drowsiness, also a marked secondary and the fourth hospital day, she passed large and the bright red blood by rectum. She went at a first bright red blood by rectum. She went at an and died on the fifth day in hospital the report showed a generalized peritonitis. The rest taking feature was in the colon. From the market to the recto-sigmoid junction at the bright the terms as a continuous defect involving all the mesenteric side of the colon. The posterior is a large intestine remained as an open trade to communication with the peritoneal earthy a first in some areas had been completely ulcetant.

The author concludes that "this condition is the different etiologically from the fulution" thrombo-ulcerative colitis described in Biggin discusses in detail the differential diagnosists.

Injuries of the Thoracic Duct. Loe, R. H. 1 / 5 %. 53: 448, 1946.

Chylothorax due to damage of the the dust either in the neck or in the chest is of the damage of the the and carries a high mortality. The commons loss of chyle, without replacement, results farally. The symptoms resulting from leakage of chyle are of two general types: those due to pressure and those due to loss of lymph chyle. If the duct is injured in the chest, pressure symptoms at first predominate, to be followed by the symptoms produced by the loss of large amounts of chyle. Dyspid is normally the first indication that fluid is accumulating in the chest. This may be delayed twenty-four hours or several days, due to the fact that at first the fluid was confined to the posterior mediastinum and later breaking through into the pleural cavity. Due to the continuous loss of chyle, symptoms such as weakness, hunger and thirst develop, since large quantities escape and the chyle is rich in the same constituents as blood serum, and in addition, fat. Emaciation and inanition develop as well as a decrease in urinary output. Death by starvation occurs in about three weeks.

The author reports in detail the case history of a naval lieutenant wounded at Saipan, by a bullet, which penetrated the left scapular area of the third rib, learing in the left supraclavicular area 2 cm. from the midline and 1 cm. above the clavicle. Thoracentesis yielded from the left side of the chest, 500 c.c. of air and 650 c.c. of blood. On the fifth day following the injury, the fluid became milky. At operation, elevation of the carotid sheath revealed the severed end of the thoracic duet which was lighted with silk. He made a good recovery and was discharged to base hospital

on the fifth postoperative day.

The author remarks that 'location of the duct may be a serious problem, and it is well to remember that it is most easily found behind the carotid sheath'.

G. E. LEARMONTH

Refrigeration in Surgery. Miller, H. I. and Miller, P. R.: Am. J. Surg., 72: 694, 1946.

The experimental and elinical evidence regarding the effect of refrigeration on tissues is reviewed. Animal experiments as so far reported do not wholly confirm clinical impressions, especially as to whether refrigeration prolongs the survival time of anomic tissues, the value of cold in achieving bacteriostasis and in lessening shock. On each of these questions, the results remain equivocal. There is evidence that prolonged cold causes fibrous replacement of nerve and muscle tissue. But there is no doubt that it produces actual anosthesia.

Amputation with refrigeration and tourniquet in the elderly, toxic patient with gangrene and sepsis gives excellent results. Pain and shock are climinated. No

A skin temperature between eight and ten degrees centigrade is desirable. Two turns of one centimetre rubber the formulation of the the tourniquet. Ice bags of the formulation of

A Comparison of Intravenous Aminophyllin with the Common Drugs in Biliary Colic. Cole, F. R.: Am.

the reason out that, experimentally, morphine raises the resource and that in practice it often fails resource to pain of biliary colic, it is shown that a copy thin lowers intrabiliary pressure and relieves n. Belaving the smooth muscle of the ampulla and notes and stones are allowed to pass into the duotium. Eleven consecutive cases are reported in which appliane, coderne, and atropine, as well as other drugs were successful in relieving pain, and aminophyllin relieved it within five minutes. In each case, seven and one half grains were injected intravenously, slowly.

The cases that were not relieved were shown at operation to be acute cholcevstitis without stone. Papaverine is considered the second best drug to use in biliary colic. Aminophyllin is not useful for the relief of postoperative pain. It is suggested that the surgeon use aminophyllin directly into the cystic or common duets following an operation for stones in the gall bladder.

Burns Plewes

Plastic Surgery

Reconstruction of Bony Defects of the Face. Macomber, D. W.: Surg., Gyn. & Obst., 83: 761, 1949.

War injuries to facial and cranial structures have provided an unprecedented opportunity to evaluate methods of bone replacement and restoration of correction the face and jaws. The use of tantalum, a rylin, I of fascia and de-epithelialized skin are briefly discussed advantages and disadvanages of fresh and preserved cartilages are considered.

The chief emphasis lies in the use of cancellous bone from the iliac crest. This is used in the form of blocks, or chips, or these combined. Where extra strength is required, a small amount of cortex is included. Bone graft is done three to five weeks after cessation of draininge or subsidence of other signs of infection. No graft was lost, though in some cases there was a sign of recurrence of infection which, however, soon subsides. Penicillin in doses of 20,000 to 50,000 units every three hours was given for several days after hone graft in potentially infected sites.

Cancellous bone is rapidly vascularized, probably is rapidly as a free skin graft. It is actively estengenic. In case where a left-over block of bone was locarded in the fat of the abdominal wall there was incomplete formation of a cortex beneath the moderately dense connective tissue investment.

1. T. Banciax

Functional Restoration of the Thumb. Kelikian, H. and Binteliffe, E. W.: Surg., Gyn. & Obst., 83: 807, 1946.

The loss of the thumb deprives the hand of most of its usefulness; grasp, torque, and apposition are lost, with all the disabilities that this implies. Two cross of loss of thumb, both with coincidental injury to the hand due to war wounds are detailed. In one cross the corresponding metawarpal was also lost. In both, the signation was met by rollicization of the index faces.

nand due to war wounds are detailed. In one case the corresponding metacarpal was also lost. In both, the situation was met by polliciration of the index faces. The blood supply from the deep pollicar arch to the index faces must be carefully preserved. The requirements for the thumb substitute are that it must ablust, oppose, flex, and touch the other faces tips. It must always sensation at least to distinguish between hear and cold and have some awareness of slare and resition.

edd and have some awareness of slape and position.

The second metacarpal is separated laterally from the hand at its distal end and a new web formed from a full thickness flap from the abdomen. It is then sectioned near its has and gradually rotated into position

so that too great a strain is not imposed on its vascular and nerve supply. The long abduetor of the thumb is attached to this metacarpal; a sort of a ball and pin joint is made by coning the proximal end of the sectioned metacarpal and exeavating a cavity for its reception in the greater multangular; the relationship of the two bones is maintained by wiring them together. All function possible is encouraged during the entire treatment.

L. T. BARCLAY

Combined Jaw Resection Neck Dissection for Metastatic Carcinoma of Cervical Lymph Nodes Secondarily Involving the Mandible. Sugarbaker, E. D. aud Gilford, J.: Surg., Gyn. & Obst., 83: 767, 1946.

"It is now generally conceded that the preferred treatment of careiuoma in cervical lymph nodes, metastatic from tumours of the oral cavity, excepting that derived from the undifferentiated eaueers found chiefly at the base of the tongue, tonsil, nasopharynx and extrinsic larynx, is radical surgical removal." Contraindications to lymph node dissection are uncontrollable primary, distant metastases, and such poor general condition of the patient as to make risk of operation outweigh what can reasonably be expected in survival.

Other considerations have to do with the extent of the disease in the neck: whether unilateral or bilateral, whether contined to the upper cervical glands or involving also the lower nodes of the chain, and whether or not the gland capsules have been penetrated. Fixation of secondary deposits to the mandible is not a contraindication to operation for the mandible may be resected.

This series consists of twelve cases. Details of preoperative and postoperative care are dealt with, also the operation is detailed and may be in two stages in poor-risk cases with resection of the jaw followed later by neck dissection. Tracheotomy is routine. Precis of all cases are presented. Seven patients are well without uncontrolled recurrence in the period of observation.

Two operative deaths occurred and two patients died of intercurrent disease without recurrence. Most of these cases were associated with carcinoma of the lip.

L. T. BARCLAY

D. 1, D.1001

Obstetrics and Gynæcology

Complications and Fetal Mortality in 136 Cases of Multiple Pregnancy. Munnell, W. E. and Taylor, H. C.: Am. J. Obst. & Gyn., 52: 588, 1946.

In 136 cases of multiple pregnancy delivered in ten years on the Bellevue Obstetrical Service, the gross fetal mortality was four times greater than the gross fetal mortality for all deliveries during the same period. The corrected fetal mortality for twins was almost twice as great as the ten-year average for all deliveries. Prematurity was the outstanding cause for the greatly increased fetal mortality in multiple pregnancy. Only 53% of the multiple pregnancies were carried beyond 36 weeks of gestation. The average birth weight was 4 lb. 7½ oz.

The order of frequency of various possible combinations of presentations has been presented. There was no appreciable effect upon the duration of labour. The toxemias of pregnancy, polyhydramnion, uterine inertia, prolapse of the umbilical cord, and postpartum hemorrhage were much more frequently encountered in multiple pregnancy. The method of delivery of either twin was of secondary importance to the factor of prematurity insofar as fetal mortality was concerned. Fetal mortality was higher on the second twin when delivered by an operative procedure. The second twin, therefore, should be allowed about twenty minutes for spontaneous delivery, unless bleeding, evidence of fetal distress or maternal complications necessitate immediate intervention. It would not appear advantageous to wait longer than twenty minutes. Prematurity should not be considered an indication for forceps delivery of the second twin.

Ross Mitchiell

Penicillin in Treatment of Acute Puerperal Mastitis. Taylor, M. D. and Way, S.: Brit. M. J., 2: 731, 1946.

The criteria for starting treatment are pyrexia, associated with flushing, and hardening of the breast. Emptying of the breast may be obtained preferably by allowing the child to feed. Adequate control of the infection can be attained only by the systematic administration of large doses of penicillin, e.g., 3-hourly intramuscular injections of 12,000 to 20,000 Oxford units.

Ten cares are reported. There was quick resolution, with no prolonged disorganization of the breast; in only one instauce did suppuration occur, and this was treated with closed aspiration. Lactation was not interfered with and breast-feeding was maintained in all but one ease. The total period of disability was not longer than 7 days and discomfort was never present for more than 3 days. No baby became infected as a result of the continued suckling. The treatment seems worthy of extended trial.

Endometriosis in Association with Pregnancy. Lock, F. R. and Myers, R. T.: Am. J. Obst. & Gyn., 52: 556, 1946.

The information contained in the medical literature leads one to believe that the combination of pregnancy and endometriosis is dangerous. Two cases, however, are reported in which patients treated conservatively for endometriosis subsequently conceived and had a normal course, delivery and puerperium.

Few specific case reports of uncomplicated pregnancies in patients with endometriosis are to be found, but a careful search of the literature reveals that such cases are mentioned casually in articles which deal primarily with the gynecologic aspects of endometriosis. An analysis of five such articles shows that approximately one-third of the patients who are treated conservatively can successfully conceive, and indicates that the vast majority of such patients have a normal pregnancy. For this reason, we wish to re-emphasize the desirability of employing procedures which conserve the childbearing function in youthful patients with endometriosis.

Pathology

Atherosclerosis and Arteriosclerosis in Dogs Following Ingestion of Cholesterol and Thiouracil. Steiner, A. and Kendall, F. E.: Arch Path., 42: 433, 1946.

Arterial lesions similar in distribution and morphological character to those seen in human arteriosclerosis were induced in dogs by feeding cholesterol in oil and thiouraeil daily to dogs for periods of 48 to 56 weeks. Previous attempts to produce such lesions by cholesterol feedings have failed and this study was undertaken in view of the known relation of thyroid function to the level of serum cholesterol. The eholesterol content of the blood exceeded the normal by maximum values of 779, 980 and 2,000 mgm. %. -A control animal, receiving thiouracil alone, and in which the cholesterol values did not exceed 500 mgm. %, showed no arterial lesions. The extent and severity of the lesions paralleled the duration and degree of the hypercholesteræmia, and ranged from intimal foam cell infiltration alone to fibrosis and hyalinization of the intima. The dog with the highest cholesterol values showed marked aortic arterioselerosis below the diaphragm, the lesions increasiug in size and severity toward and beyond the bifureation of the aorta. Further, this animal had calcified plaques in the iliae-arteries. Cerebral arteriosclerosis was not produced. Hypertrophy and hyperplasia of the thyroid gland were seen in all dogs as a result of The authors believe that, thiouraeil administration. allowing for the differences in cholesterol values and life span in the two species, the conditions necessary for the production of arterial lesions are similar in both the dog and the rabbit. However, the distribution in the dog was different from that observed in the rabbit and was strikingly similar to that seen in human arteriosclerosis. It is probable that the fundamental disease

process is the same in both dogs and rabbits and that the differences in distribution and morphologic character of the lesion are due to some unidentified anatomical factor. The ability of the dog to metabolize considerable quantities of cholesterol did not prevent the development of arterial lesions after the hypercholesteranua had Leen established. W. E. FINKELSTEIN

Temporal Arteritis: Report of a Case and a Comparison with Respect to Periarteritis Nodosa. Gordon, L. Z. and Thurber, D. C.: Arch Path., 42: 402. 1946.

Temporal arteritis was first reported in 1932. Since then over 40 cases have been described in the literature and the clinical and pathological picture has been en larged. Usual symptomatology consists of severe head-ache and bi-temporal pain with tender areas along the course of the superficial temporal arteries. There may be associated fever, anorexia, malaise, anaemia and loss of weight. The clinical course is benign, usually ending in recovery. Clinical findings in the nature of ocular symptoms, pain in the extremities, pain in the teeth and jaws and cerebral symptoms in addition to the usual symptomatology of temporal arteritis itself, suggest that a widespread vascular involvement may occur. Autopsy findings in a number of cases indicate that the lesions may be widely distributed, since similar lesions have been found in the norta, carotid, cerebral, innominate, subclavian, iliac and retinal vessels, in addition to the temporal arteries.

The authors describe one case of temporal arteritis, with recovery. The histological picture of the process was, in essence, a pan-arteritis with intimal proliferation, focal medial necroses bordered by giant cells and epithelioid cells, and an adventitial lympho-eytie infiltration particularly around the vasa vaso-rum. The authors feel that differentiation between periarteritis nodosa and temporal arteritis based on the character of the eellular response is impossible. the character of the eellular response is impossible. Both lesions show similar phases of destruction followed by repair, and every histological picture described in temporal arteritis can be duplicated in periarteritis nodosa. Important differences do exist, however, in the distribution of the lesions: periarteritis tends to be predominantly a "panarteritis of visceral vessels" whereas temporal arteritis is a "panarteritis of peripheral vessels". Further, the latter condition is more common in females and, to date, no case has been reported under the age of 55. Periarteritis is more frequent in young adult males. The authors surmise that the difference in distribution of these lesions may acthe difference in distribution of these lesions may account for the difference in mortality which is higher in periarteritis nodosa, although this difference may be revised as more eases are reported. W. E. FINKELSTEIN

Necropsies on Okinawans. Steiner, P. E.: Arch. Path., 42: 359, 1946.

Findings in 150 necropsies performed on Okinawans of all ages during the American campaign on that island are reported. Some interesting differences in pathological findings were noted in this group when compared with those that might be expected in Americans. The most striking difference was the low incidence of the retrogressive and degenerative diseases. Arteriosclerosis appeared late in life and developed to a moderate degree or not at all; further, its sequelae in relation to brain, heart and kidney were not observed. Hypertension, heart disease and renal disease of all Hypertension, heart disease and renal disease of all types were either absent or extremely uncommon. Although cirrhosis of the liver was found, disease of the extrahepatic biliary system was not noted. The low incidence of these diseases as seen in this series agreed mediane of the author puts forward the suggestion these people, the author puts forward the suggestion that two possible etiological factors in the low incidence of degenerative diseases may be (1) placid, although physically strenuous, existence, and (2) a simple, largely vegetarian diet. Malignant tumours were not noted.

although benign neoplasms were not infrequent. Diseases of the enducrine glands were either non-existent or very rare; the author believes this to indicate excellent endocrine balance as is evidenced by the rarity of prostate hyperplana, uterine fibroids, pathological obesity, hirsutism in women, diabetes, etc. The most frequently observed causes of death were pulmonary tuberculo-is of an acute, extensive, fulminating type, pneumonia and dysentery. Tetanus was a common finding in cases of combat injury. Infestation with para--itic worms was common but was rather benign insofar as clinical effects were concerned; this was also the case with filiariasis which rarely caused elephantiasis. Interesting anatomical findings in all cases were a large. long, tortuous colon with an S-shaped curvature at the hepatic flexure, possibly related to a predominantly vegetarian diet over many centuries, a very small splcen and a large, firm pink paneress about one-third heavier W. E. FINKELSTEIN than the spleen.

Hygiene and Public Health

The Attitude of Industrial Management Toward Alcoholism. Mortenson, C.: Quart. J. Stud. Alcohol, p. 205. September, 1945.

Employment counsellors and foremen can be advised that alcoholism is no longer the hush-hush matter that it once was and that the temporarily incapacitated alcoholic employee should seek treatment for his ailment. That is the suggestion offered by the author in this contribution to a symposium on the problem of alco-

holism in post-war planning.

Alcoholism is a personality disorder and as such is a legitimate concern of industrial management just as are other problems of health and disease in general. In the post-war period, the problem will doubtless be much greater than at present. In the opinion of the author, what to do with the alcoholic employee will depend upon the advice of our future psychiatric consultants. efforts to rehabilitate these persons are justified is indienorts to renaminate these persons are justined is indi-cated by the presence on various industrial staffs of recovered alcoholics who have proved to be able and productive men. The cost of such a rehabilitation productive men. The cost of such a renadilitation program in an industrial plant employing from 10,000 to 25,000 men and women would be approximately \$15,000 per year or \$30 to \$60 per alcoholic.

The author is convinced that industrial management should take an active interest in this problem of alcoholism. Although he would not yet suggest the specific efforts to be made within the factory, he recommends that all possibilities within the plant be investigated. that all possibilities within the plant be investigated. He suggests the forming of a committee representing the personnel department, the health department and the operating department. With the co-operation of a recovered alcoholic in the plant, and by consultation with psychiatrists, this committee should survey the problem as it exists in the plant, and their past experience with alcoholics. He suggests that it familiarize itself with any community resources which could be utilized and with the services rendered by national organizations such as the National Committee for Education on Alcoholism. The nature and degree of the action to be taken by any plant should then be based on the findings of their investigational committee rather than on armeliair speculations.

MARGARET H. WILTON chair speculations.

Hazlett, T. L.: Executives' Health in Industry. Hygeia, p. 672, September, 1946.

That industry is overlooking the Lealth of its executives is indicated by the findings of a cardiovascular survey conducted during 1945, of 909 supervisory, employees of the Westinghouse Electric Corporation. Among these persons, whose ages ranged from 29 to 72 years, it was found that the frequency of cases in whom no abnormal findings were recorded, fell rapidly with advancing years. The abnormalities found, in-creased greatly as the 40 year old group was reached and rose sharply above this age.

The author makes a number of suggestions and recommendations to safeguard the health interests of these supervisory employees. He stresses particularly

the importance of regular eareful physical examinations and of following any recommendations of the examining physician. He discusses briefly the necessity of viewing all petty annoyanees objectively and of not magnifying them, the need for executives to assign various duties to a subordinate, the values of adequate sleep and the importance of following the requirements of a normal

Intelligent use of physical exercise is important. A real vacation is essential, not merely a periodic pause as provided by one days's rest in seven, but a fairly prolonged departure from accustomed seems and departure from accustomed seenes and The hobby selected should be one that proprolonged routines. vides mental diversion. It should not add strain either to an overwrought mind or to a tired body. Moderation is advised in the use of both alcohol and tobacco.

MARGARET H. WILTON

Ophthalmology

Retrobulbar Neuritis and Complete Heartblock Caused by Digitalis Poisoning. Wagener, H. P., Smith, H. L. and Niekeson, R. W.: Arch. Ophthalmol., 36: 478, 1946.

The authors point out that whereas disturbances of vision such as coloured, frosty, snowy, or blurred vision, or flickering sensations, resulting from digitalis intoxica-tion have been described by many investigators. no definite instance of retrobulbar neuritis eaused by digitalis poisoning appears in the literature. The visual disturbances have generally been attributed to a cerebral intoxication. This paper purports to demonstrate that digitalis poisoning can effect not only the higher cerebral centres but also the papillomacular fibres of the optic nerve. Inasmuch as digitalis has a selective action on the vagus nerve, the aurieulo-ventrieular conduction mechanism and the sino-auricular node, it is not in-correct to postulate the possibility of direct damage to the optic nerves secondary to generalized systemic intoxication. Since digitalis is in constant and universal use, its toxic manifestations cannot be overemphasized.

A case report is included of a fifty-year-old white male, who had been on digitalis therapy for over two months because of having shown extrasystoles. His ocular complaints were blurring of vision, and a yellow discoloration of lights, grass, etc. The ophthalmoscopic examination revealed blurring of the disc-margins, and field studies showed no peripheral change; but centrally each eye had a relative scotoma of about eight degrees, with a small absolutely dense focus in the centre of each. The electrocardiogram showed, among other findings, a complete heart block. Digitalis was stopped, and fluids administered orally in increasing amounts. Within five weeks his eyes and general condition returned

to normal.

Neurology

Surgical Treatment of Syringobulbia and Syringopontia. Cramer, F. J.: Arch Neurol. Psychiat., 56: 442, 1946.

The conditions of syringomyelia, syringopontia and syringobulbia are merely topographically different expressions of the same pathological process. They are said to be due to an anomalous congenital dysplasia of ectopic gliogenous cell rests within the neuraxis and the symptoms are eaused by the sequelæ of development, maturative and degenerative processes which undergo. The symptoms are produced in part by the direct involvement of the nuclear masses of fibre tracts whose normal location has been supplanted by hyperplastic eell rests. In part they arise from disturbance in vascular supply of normal nerve tissues due to degeneration, and diapedesis and hemorrhage which may occur in abnormal vessels surrounding the hyperplastic zone. Also in great part the symptoms are produced by direct pressure on adjacent nerve tissue by collection of fluid under increased tension within the cavitations.

Two cases are reported in which surgical intervention was beneficial. The relief of the tension resulted in arrest in the progress of the disease, and even recovery of some of the neurological deficits. In neither case was an attempt made to obliterate the cavity.

PRESTON ROBB

Roentgenology

Ossification of the Coracoclavicular Ligament Following Dislocation of the Acromioclavicular Articulation. Soule, A. B. Jr.: Am. J. Roentgenol., 56: 607, 1946.

Post-traumatic ossification of the coracoclavicular ligament is a common sequela of avulsion of this ligament associated with dislocation of the acromioclavicular articulation. It is seem more commonly in dislocations which are classified clinically as complete. The ossifica-tion appears three to six weeks following injury and becomes complete in about eight to ten weeks following injury. If the ossification has not appeared within six weeks following injury, it probably will not appear at a later date.

The ossification does not appear to contribute to the disability of patients, but may aid in restoring continuity of the damaged ligaments and in stabilizing the acromicelavicular articulation. R. C. BURR

The Osseous Manifestations of Eosinophilic Granuloma. Hamilton, J. B., Barner, J. L., Kennedy, P. C. and McCort, J. J.: Radiology, 46: 445, 1946.

Nine cases of eosinophilic granuloma of bone, confirmed by histopathological examination at the Army Medical Museum, have been reported with clinical and

laboratory findings.
On the basis of the roentgen appearance, the diagnosis of eosinophilic granuloma may be strongly suggested, but histopathologic confirmation is necessary. A well circumscribed osteolytic lesion, with little evidenee of reactive new bone formation, in a child or young adult, is suggestive of a granuloma. The condition, may, however, be closely simulated by a fibrosing osteitis developing after a closed injury to the skull. Meningiomas eroding the cranial vault and epidermoid cysts can usually be differentiated from eosinophilic The meningigranulomas on an analysis of the films. omas erode the inner tables more than the outer, and the epidermoid eysts originate in the diploe and expand through both the inner and outer tables of the cranial

The necessity for confirmation of the diagnosis by

biopsy has been stressed.

The use of roentgen therapy has been discussed. In our experience, irradiation relieved the pain associated with the lesions. R. C. BURR

OBITUARIES

Dr. Charles McQueen Avard, of Amherst, N.S., died at his home December 9, 1946, at the age of S1. He was born at Bristol, N.B., in 1865. Following graduation from the Normal School at Fredericton he taught school at Sackville and Middle Sackville. He graduated in 1895 from Jefferson Medical College. His first practice was at River Hebert where he was associated with the late Dr. W. R. Rockwell. He came to Amherst in 1900 and was a member of the first organized medical staff of Highland View Hospital. He took postgraduate work in Paris, Vienna, and London, returning to Amherst in 1914. In 1918 he moved to Scranton, Pa., where he practised until 1929. Since that time he has lived in Amherst. He was active in civic affairs and was for a period mayor of the town.

Dr. Benjamin Moore Bayly died in Moose Jaw, Sask., on November 30, in his 79th year. Dr. Bayly was born in London, Ont., and graduated

in medicine from Western University in 1889, later

taking postgraduate work at the University of I rent, He was a member of the council of the Saskatchewan College of Physicians and Surgeons for many wats and was widely known throughout western (anala

A veteran of the First Great War, Dr Back wont overseas as medical officer of the 46th Buttahon (EF Later he was with No. 2 Hospital Unit at Borlogne, France, and was with an advanced dressing station during the last year of the war.

He is survived by his widow and one son.

Le Dr Claude Beaulieu, âgé de 27 ans, et nat t de l'Isle-Verte, est décédé jeudi le 5 décembre a l'hopitat militaire du Parc Savard.

Il fit ses études classiques au séminaire de Ricionski et ses études médieales à l'université Lacal m il gradua en juillet 1944. Le Dr Beauheu faisait partie

de l'armée canadienne comme médecin. Licencie en novembre 1944, il pratiqua sa profes sion à l'Hôtel-Dieu de Gaspe comme méderin resident jusqu'en 1946, alors qu'il cessa de pratiquer pour cause de santé.

Il laisse son épouse et un fils.

Dr. O. H. Bertrand died November 30 in Calgary.

Le Dr Aldéric Brosseau est décédé le 6 décembre à l'âge de soixante-douze ans. Né à Sainte Thérèse-de-Blainville, il avait fait ses études au séminaire de l'endroit. Médecin anesthésiste, il exerça sa profession durant plus de quarante ans, à l'hôpital Notre-Dame.

Il laisse son épouse et deux fils.

Dr. J. R. N. Childs died in London, Ont., on November 25. Born in 1887, he graduated in medicine from the University of Western Ontario in 1909.

Dr. Wolfe Joseph Costello died December 1 at his home in Buckingham, Que. He was born March 18, 1878, at St. Chrysostome, Que.

After receiving his primary education he went to Montreal, where he graduated with his B.A. at St. Mary's College, in 1901. He also attended McGill University, where he attained his M.D. and C.M. in 1905, after which he returned to Buckingham to

practise. Besides following his career as a physician, Dr. Costello soon became interested in the public field. It is said that one of his greatest contributions to Buckingham and its institutions was in the cause of education.

He was a school commissioner for a period of 40 years and chairman of the school board for many years. In this capacity he was instrumental in improving educational facilities and equipment in his

He entered the political field in 1924, serving a twoyear term as alderman. In 1930, he also was elected as mayor of Buckingham, and during his term achieved many benefits for the town. He also took an interest in provincial politics and was a past-president of the Liberal Association for Papincau County-

He was appointed eoroner of Papineau County in 1933 and discharged the exacting duties up to the time of his death.

A devout churchman, he was past president of the Holy Name Society. He was also a past grand knight of the Knights of Columbus.

He was an expert fisherman, but found little time for this outdoor hobby.

He is survived by his widow, five sons, and five daughters.

Le Dr Léo Duguay, ancien député du comté de Lac St-Jean, à la Chambre des communes, est décéde le 4 décembre à l'âge de 46 ans. Il a fait ses études au Collège Ste-Marie et à l'univer-ité de Montréal. 11 a pratiqué ensuite sa profession à St-Joseph d'Alma.

a. Lu Stean In 1979, il etait élu député du come a la Clarate les communes, et en 1936, il epresentait à conte à la Législature québécoise.

Il lusse dans le leud sa femme, un fils et deux

Dr. William J. H. Gould died on December 21 in Paris. Out He graduated in medecine from the Uniceisit of Western Ontario in 1905. Surviving are his widor, two sons and one daughter.

Dr. A. E. Kennedy, of Stettler, Man., died in November, 1946, following a prolonged illness. was a graduate of University of Manitoba in 1917. In 1920, he registered in Saskatchewan, and the same year registered with the General Medical Council of Great Britain. In 1922, he came to Alberta and com-rienced to practice at Camrose, later moving to stettler. Dr. Kennedy, prior to the onset of his illness, was a member of the Council of the College of Physicians and Surgeons for District No. 3.

Dr. William C. McGuire, of Hamilton, died on December 7 in Toronto. Following his graduation from Western University in 1937, Dr. McGuire took post-graduate courses in England and Edinburgn, Scotland, and was made a Fellow of the Royal College of Surgeons, Edinburgh. Since securing see honours, Dr. McGuirc returned to Hamilton, and was, until his illness, on the staff of the McGregor Chnic, where he specialized in surgery.

A member of the United Church and of the Rotary Club, Dr. McGuire had assisted in the work of the Rotarian orthopædic survey, from which many children

benefited.

Dr. McGuire was born in Ripley, Ont., in 1910 While only a young man he had gained a wide reputa tion in his profession.

Besides his widow, he leaves one son, and one

daughter.

Dr. Delaski Marr, for over 50 years a physician-died at his home in Ridgetown, Ont., on December 28, in his 76th year. He came to Ontario from his birthplace, Almont, Mich., when he was a year old. His father, the late Dr. Francis B. Marr, practised in Ridgetown for many years.

He graduated from the University of Toronto Medical School in 1893. Soon after, he went to New York and Edinburgh to take postgraduate studies.

For some years he was associated with his father.

Dr. Marr was internationally known as a bowler and horticulturist. He was a director of the Ontario Society for Crippled Children. In 1932 and again in 1936 he represented Canada at international tournaments in Britain and on the continent.

A member of the Ridgetown High and Vocational School Board for many years, at the time of his death he was M.O.H. for Howard township and Ridgetown. He is survived by his widow, and two daughters.

Dr. Arthur Potvin died on December 12 in Quebec

City, at the age of \$3. A graduate of Laval University he had been practising his profession for 57 years and was a former church warden at the Basilica.

In 1885 he joined the Voltigeurs and fought against Louis Riel and his rebels.

Surviving are his widow, and two daughters.

Dr. Henry Thomas Reason, aged 73, died in London. Ont., on December 31. He started his own business, the H. T. Reason Company, but ill-health caused his retirement 15 years ago.

In addition to business interests, Dr. Reason was actively associated with the University of Western Ontario, from which he had graduated in medicine in 1901. He served on the board of directors, and his influence was effective in preventing the removal of the university to Toronto.

He was a former president of the Associated Board of Trade of Ontario, and president of the London Board of Trade. He was instrumental in getting action on rehabilitation of the harbour at Port Stanley. He was a former director of the London Baseball Club in the Michigan-Ontario League, and was one-time vicepresident of the London Liberal Association.

Surviving are his widow, two sons, and two

daughters.

Dr. Peter Luther Straith, aged 62, of Courtenay,

B.C., died on December 1 at his home.

Born in Holstein, Ont., he attended schools in Woodstock and Mount Forest, and later taught school for several years on the Prairies. Later he returned to Ontario and graduated in medicine from the University of Manitoba. He practised for 15 years in Regina before moving to Vancouver Island.

Dr. Straith is survived by his widow, two daughters,

a son, five brothers, and four sisters.

Dr. Gilbert Armitage Trenholme, aged 78, died on

November 26 at Windsor, Ont., after a lengthy illness. Dr. Trenholme was born in Trenholme, Que., and has lived in Windsor for the past 24 years, coming from Coaticook, Que.

He was a graduate of McGill University, and was a former governor of the Quebee College of Physicians and Surgeons.

He was a member of Rose Lodge 500, A. F. and

A. M.

He is survived by his widow, one son, and two daughters.

Dr. Gerald S. Williams, veteran of the two world wars, and for many years superintendent of the Children's Hospital, Winnipeg, died at Deer Lodge Hospital on December 2, aged 57. Born in Winnipeg he was educated in the local schools and graduated from Manitoba Medical College in 1913. During the first world war he served overseas with the R.A.M.C., transferring later to the R.C.A.M.C. At the end of the war he returned to Winnipeg, served with the soldiers' eivil re-establishment board and was also in general practice. In 1923 he became superintendent of the Children's Hospital, and developed a talent for administration. He was a director of the Manitoba Hospital Association and a Fellow of the American College of Hospital Administrators. On the outbreak of the second world war he obtained leave of absence from the hospital from 1940 to 1944. He was medical officer of the 10th Signal Corps, served overseas and obtained the rank of lieutenant-colonel.

Dr. Williams was keenly interested in golf and curling. He was a member of the vestry of St. Paul's Anglican Church, Fort Garry. He is survived

by his widow, a daughter and two sons.

C. F. Wylde, F. J. Tees, C. R. Bourne, N. T. Williamson An Appreciation "Conjoined in One"

C. L. ROMAN Valleyfield, Que.

In the space of four weeks, death took from the staff of the Montreal General Hospital four members whose professional attainments were respected and whose passing was mourned. C. F. Wylde was on the threshold of four score years and was known for his serene, tolerant and unchanging disposition. F. J. Tees was in his mid-sixties and personified a smiling, cheerful geniality that warmed the hearts of a wide circle of friends. C. R. Bourne, of the same age, was a clinician of broad experience whose life was marked with sincerity of purpose and an unassuming devotion to his profession. N. T. Williamson, the youngest of

the four-he was only fifty-three-was esteemed for his kindly personality, his vigorous forthrightness and his outstanding ability in his chosen field.

In common, they contributed much to the stability of the medical staff of their hospital and, in their way of life, were examples in the fine traditions of a great hospital. It is of medical interest that the three eldest of this group made their exit through the door of vascular frailty, while the youngest slowly passed through the dark and grim vestibule of hopeless and relentless neoplastic tragedy. The four will be missed and the memory of their comings and goings, with the redolence of high conscience and dedication, will always be an inspiration to the circle which they honoured. "They enlightened the darkness that surrounds our path", and, to paraphrase Havelock Ellist their final accomplishment lay in giving into the hands of the runners whom they outpaced in the torch-race of life the living torch, bright and unflickering, as they themselves disappeared in the darkness.

NEWS ITEMS

Alberta

The Board of Directors, Alberta Division, Canadian Medical Association, met in Edmonton on December 2, 1946. The dates set for the 1947 Convention were approved. It is to be held in Edmonton at the MacDonald Hotel on September 10, 11, and 12, 1947. Dr. Harold Orr was appointed to deputize as chairman on the Com-

mittee on programme and arrangements.

The Board of Directors approved of the appointment of life membership of medical men who have been registered in the Province of Alberta for a period of years, and in good standing for that time. following doctors were granted life membership: Aiken. G. M.; Anderson, W. G.: Archer, A. E.; Ardiel, A. E.; Birch, J. H.; Chrystal, R. J.; Creighton, J. A.; Dixon. Ivan; Farquharson, W. O.; Gibson, H. A.; Graham, M.; Lamb, W. V.; Learmonth, G. E.; Lincoln, W. A.; McKidd, L. S.; MacDonald, T. G.; Mason, E. G.; May, L. W.; Macdonnell, J. J.; McGuffin, C. F.; McLaren, D. D.; Oatway, R. M.; O'Hagen, Thomas; Quesuel, Phillip; Redmond, W. C.; Scott, W. H.; Prottor, Richard; Shirreffs, H. S.; Stanley, G. D.; Staples, C. A.; Stevenson. T. B.; Sullivan, F. A.; Wilson, W. A.

Proctor, Richard; Smirens, H. S., Stanley, G. Z., Staples, C. A.; Stevenson. T. B.; Sullivan, F. A.; Wilson, W. A.

Senior Members, Canadian Medical Association.—
Braithwaite, E. A.; Campbell, P. M.; Lafferty, A. M.; McEachern, J. S.; Pope, E. L.

The following were elected to the Council of the College of Physicians and Surgeons of Alberta: Dr. J. W. Richardson, Calgary; Dr. S. M. Rose, Lethbridge; Dr. J. D. Neville, Camrose. Dr. Richardson replaces Dr. W. A. Lincoln, who has retired from practice, and Dr. W. A. Lincoln, who has retired from practice, and Dr. Neville replaces Dr. L. M. Rogers, who has moved from G. E. LEARMONTH the district.

British Columbia

First registration of blood donors for the Red Cross Blood Transfusion Service will commence in British Columbia in January. British Columbia is the first Province to organize the new Service under a national Red Cross program. The new Service aims at providing free blood and plasma for all hospital patients needing such service.

Dr. Stuart Stanbury, the National Director of the program will visit Vancouver to inaugurate the Service.

Hendquarters in B.C. will be at the Red Cross Depot and laboratory at Shaughnessy Hospital. The newly appointed Provincial Director is Dr. W. G. Rice. Dr. Rice was formerly with the Banting Institute in Toronto. He saw extensive service with the Navy during the war.

The Annual Meeting of the Me $_{\perp}$ ciation was held on Monday, Decen a Directors report that membership i during the past year. The Association 295 groups employing approximately

St. George's Hospital at Alert Bay operated for many years by the Column 11 has recently been taken over by the 🛰 🕡 tal Society representing the larger logical the Alert Bay area. The aim of the rew size to modernize and improve the lost the area.

The Board of Directors of the Radial tal, Victoria, B.C. have announced to Walker, who has been superintented thirteen years, is retiring

Dr. Walker will be succeeded by In M who has been assistant director of the

pital, Ann Arbor, Michigan.

Dr. M. R. Caverhill, till now Extended to the the Gollege of Physicians and Surger to the British Columbia Medical Association by a series this post and is a senior medical other virt in Walmen -Compensation Board.

Whilst his resignation is felt is a sure loss to the Council of the College and B (Me had Association, we feel that the Workmen's Compensation Bear I is to be congratulated on the acquisition of this very capable

evecutive officer.

The British Columbia Branch of the Canadian Cancer Society together with the B (Cancer Foundation are initiating plans for another point cancer campaign in April, 1947. This will be part of the international campaign against eancer.

Initial meetings of the joint campaign committee have been held, and it is hoped to complete the cam paign organization throughout the Province at an early J. H MACDERMON

date

Manitoba

The Manitoba Medical Association has named its president, Dr. J. R. Martin, Neepawa, as its representative on the Manitoba Sanatorium Board to succeed Dr. S. Schultz.

Dr. Bruce Chown, Winnipeg, has returned from at tending a meeting of research workers in the Rh factor at Baylor University, Texas, and the Interna tional Blood Transfusion Congress at Mexico City.

Offices in the new addition to the Medical Arts Building, Winnipeg, are now being occupied.

Dr. Digby Wheeler, Winnipeg, has returned from a meeting of the Inter-American Congress of Radiology at Havana, Cuba, where he read a paper on "Diverti cula of the foregut".

The report of the Rockefeller Poundation on per sonnel training requirements of the Health Services Act of Manitoba has been presented. One recommendation, that the number of medical students be increased by 20 to 25%, has been met by the action of the Board of Governors of the University raising the number of students admitted to the first year from 60 to 70. Other recommendations were that the enrriculum of the Paculty of Medicine should be re viewed in terms of training the basic doctor to meet the job analysis requirements of the municipal doctor. and that the first step toward this reorientation should be the appointing of a full time head of a department of social and preventive medicine. He would be assistant dean and would act in hisson capacity with the department of health and public welfare. The

150 - 1 _ 111 1' in is hing in ; 4 1 a ad teligio - ta i dilil 1,131 ł ar ar ftir-1 The Leateller F *1 +1 a test. The Man't ba heada f at e on approach in the idea that we be fir the provision of better health sir . .

A new and modern health and e. . . . the eterans convalescing trin war vor 13e cited at Kirkfield Park ab ut three Deer Lodge Hospital Work in the meaalready in progress and it shall be read cupants some time in 1947. When complete provide accommodation for some 200 patents will be housed in a series of eight sungar is a around the administration building

Some of the special features will it medicine building complete with g ming pool, bowling aller and physically

therapy departments

Drs Walter Alexander at l Later - 1 been appointed assistant of the nipeg General Hospital

More than \$20 permits in tuberculosis in 24 number attecities of Portage la Pra în an l ** 1 dition more than 20 mm wer _i '' was survey unit of the Winnipez lealt _ r or January all university students was leave later, with the cooperation of the Warrantee department, a survey of 12 mm W vv 112 st dren will be undertaken. The Sanat repurchase a second mobile viras and

During the past 15 years the titer above her in Manitoba has decreased 1% and when India deaths are excluded the red of reas 54%

Deer Lodge for veterans has allely justs a rgery department and an allergy can. The fact it is of the occupational and pathor zeal departerity have been greatly increased

Dr. W Stuart Sar r sat or il director of the blood transfusion set of the Canadian Red Cross announced that property of the paning a blood transfusion depot and set of the g discussed with the Manitoba government

Winnipeg's births set all time record in 1946. Live births registered in the city for the past year numbered 7,010, with box in the majority by 190. The 1945 total of births was 5,641,

The regular monthly receing of the Winnipeg Medical Society on December 13 was highlighted by the presence of Dr. Rudolpl. A. Peters, Professor of Biocher detry, Oxford University. His address dealt with the progressive steps which led to the discovery of British anti-lewisite, which has proved so successful not only against the arsenical gas but against all other forms of arsenical poisoning. It was the story of brilliantly planned deductions told in a modest but impressive way. The speaker was introduced by Prof.

A. T. Cameron and a vote of thanks at the conclusion of the address was moved by Dr. F. D. White, both of whom had known Dr. Peters. Dr. B. E. Loadman spoke on "The Bridging of Bone Defects" as practised in Deer Lodge Hospital and showed numerous x-ray plates. He emphasized the value of cancellous bone.

At a public meeting in the recently completed Memorial Wing of Bethel Hospital, Winkler, on December 22, the assistant secretary of Manitoba Pool Elevators presented a cheque for \$2,000 to the Bethel Hospital Society. Mr. Richmond stated that the sacrifices made by the young men of rural Manitoba during the war prompted the group to set aside a memorial fund in order to make rural life more attractive. A few months ago Crystal City Hospital received a similar gift. Peter Brown of the Hospital Board in accepting the gift said that the hospital which had been started in 1936 with 15 beds now has 38 beds. Included in the new wing are x-ray and laboratory fittings, two operating rooms and adequate office and staff facilities. Dr. F. W. Jackson, deputy minister of health, said that Winkler hospital zone had been the first to reach the objective of five beds per thousand of population aimed at by the department of health. Ross MITCHELL

New Brunswick

Dr. H. H. Hatfield of the New Brunswick Department of Health is now directing the work of the V.D. Division of the Department.

Dr. J. E. M. Carnwath who has practised for long years at Riverside, Albert County, is disposing of his practice preliminary to retirement. For many years Dr. Carnwath supported a cottage hospital which was of great service to his community.

Dr. J. A. Melanson, chief medical officer of New Brunswick received a special certificate of merit from the Commander of the Hospital of St. John of Jerusalem, for his outstanding services to the order in peace and especially during the past war.

The Saint John Medical Society, entertained at a banquet for the veterans of World War II recently at the Bungalow, Pleasant Point. Out of town visitors included Dr. D. F. W. Porter of Sussex Military Hospital, and Dr. L. DeV. Chipman of Wolfville, N.S.

Dr. E. H. Petrie of Saint John, and Dr. J. S. Hynes of Fredericton are attending the mid-winter meeting of the Çanadian Association of Radiologists at Quebec City.

A. S. KIRKLAND

Nova Scotia `

A Cape Breton artist has been making sketches of Cape Breton celebrities. There recently appeared in the Sydney Post Record a well executed picture of Dr. H. A. Ratchford of Inverness. It is noted in a small inserted sketch over the doctor's left breast that horses are his hobby.

Dr. D. B. MacPherson of North Sydney, well known for his treatment of cancer, died at his home in December.

Dr. W. S. Gilchrist, of Pictou and Halifax, is sailing early in January for Angola, West Africa, where he will resume his medical missionary work, interrupted by his years of service in the Canadian Army Medical Corps. Dr. Gilchrist is taking with him a jeep and large quantities of medical supplies.

During the war the Federal Government paid the City of Halifax the sum of \$30,000 yearly to assist in the maintenance of its health service. This grant has ceased as of December 31, 1946.

Dr. C. M. Bethune, Superintendant of the Victoria General Hospital, spent part of the Christmas holidays visiting with his mother and sister in Boston.

Dr. Lynn Bashow, after a period of postgraduate work in Calgary, has established himself in practice at Goldboro. This community has been without a physician for several years and the people greeted their new doctor with open arms. They had a house for him, a liberal supply of coal in the cellar, and even a substantial stock of groceries to hearten his arrival.

Dr. H. E. Levittan has left Guysboro. After a period of rest, he will follow postgraduate work in internal medicine. Dr. Frank Hazen will take over his practice.

Dr. Harold Roby of Truro, has opened a practice at Oxford.

H. L. SCAMMELL

Ontario

The Fourth Alumni Lectureship at the University of Western Ontario Medical School took the form of a three-day symposium on diabetes. The principal speaker was Dr. E. P. Joslin, of Boston. He spoke on "The Treatment of Diabetes, Diabetic Coma and the Insulins", as well as taking part in the clinical conferences. Dr. C. H. Best, of Toronto, spoke on "Endocrine Control of Carbohydrate Metabolism". Professor Moses Barron, of Minnesota, spoke on "The Basis of Banting's Discovery"; he stated that it was one of his articles published in 1920 which stimulated Banting's research.

Members of the staff of the Faculty of Medicine also gave addresses. Clinical conferences were held by the medical staff of Victoria Hospital led by Professor F. S. Brien; at St. Joseph's Hospital led by Dr. H. O. Foucar and Dr. S. M. Fisher and at Children's Hospital led by Professor H. S. Little.

The symposium was well attended. In addition to the medical students, nurses and dietitians there was a large attendance of practicing physicians from both London and southwestern Ontario, including over 100 doctors representing fifteen counties. Dr. Joslin attended the annual student banquet where he gave a charming address full of personal reminiscences from his long interesting career.

Dr. Harry M. Nelson, President of the Detroit Institute for Cancer Research, addressed the Women's Council of the Ontario branch of the Canadian Cancer Society at a luncheon in the King Edward Hotel. Toronto, in December. Many women delegates paid their own expenses from various parts of Ontario. The nine Provincial secretaries, who were in Toronto for a meeting, attended.

Dr. Nelson said that the American Cancer Society raised \$1,500,000 last spring. This money is divided between the state organization and the national organization. The State gets 60% of monies collected. This is used for education and service but it may be used for State research. The central organization asks for the submission of a budget from each State. Forty per cent of the monies collected goes to the national organization and 25% of this is spent on basic scientific research. More recently they have concentrated

on the problem of cellular growth.

The big problem of the American Cancer Society is how best to spread information. In 1935 the National Women's Field Army was formed, and it has proved to be one of the greatest factors in the dissemination of information. The interest of the women is vital. There is a branch in every State but one. The policy of these State branches is supervised by the national executive in New York. They found that the program in the hands of lay women, rather than in the hands of men, made for sympathy and patience and much volunteer work.

The cancer work should not conflict with any other health activity. He advised against the Cancer Sorrer taking part in a community fund drive terause, it they did, the educational value of the drive was tost. The National Research Council is its advant in terral h. He stated that the greatest problem we con ver a mamong the doctors. To help in their court in the Cancer Society is paying the expense of the court Medical Society Secretaries to go with the court people we have the court man and the court man a on their trips and meetings and speak to the public directly. A journal is to be published and south the event doctor in the United States without the Transcribes in this journal are to be written to the general practitioner and not for the specialist
A survey of existing activities in the

being made by the national office. Support string given to young scientists with fellowships so that they can go on in this research work. There are an about twenty fellowships available, worth about so in the year

apiece.

This Society has two objectives - * * ._ range object to find the cause of cancer, and it is it range object to cure it. That is, to use the resource allable to save more lives. The factors necessive are early recognition by the patient, early recognition by the patient, early recognition by the doctor, prompt and adequate treatment there is a demand for more diagnostic and treatment centres. At present the four divisions of cancer toth are (1) The information centre. (2) The detection entre, which gives physical examination for well people. This is considered to be admirated to the divertion. sidered to be part of the educational program. (3) The diagnostic centre, where patients are sent when cancer signs are present. These centres have special equipment and are ready to take biopsies, to make extensive x-ray studies, and to do complete blood work, to give the patient a correct diagnosis. (4) There is the treatment clinic. Nearly every large city has a treatment clinic attached to one of its general hospitals.

Physicians should report every case diagnosed and

treated. Some States call for reporting of cancer cases. Connecticut has had volunteer reports for eleven years, and they have the best statistics in the Union. This was achieved by paying hospitals for sending in complete reports and some hospitals add greatly to their income by co-operating with the Health Department of the State. Cancer has declined in certain age groups, i.e., up to 55 years of age. The increase is in the groups over 55. The population is growing older. One-third of the population reaches 45 years as against one-fifth

a few years ago.

The research scientists have now began to push back the iron curtain!

The University of Toronto recently announced a bequest of approximately \$500,000 by the late Dr. John S. Chisholm of Prince Albert, Sask., for the use of the University's Faculty of Medicine. Dr. Chisholm died on September 6, 1945.

In his will Dr. Chisholm left saction 2500,000 to the control of the cont

on September 6, 1945.

In his will, Dr. Chisholm left another \$500,000 to his sister, Mrs. W. G. Collison of Lindsay, Ont., wife of Dr. W. G. Collison. Interest on this amount will be used by Mrs. Collison during her lifetime and, by the terms of the will, this sum also will revert to the University of Toronto on her death. University officials said the bequest "will enable us to do a lot of work not provided for in the regular funds", particularly in medical research in which Dr. Chisholm was interested.

IJLLIAN A. CHASF LILLIAN A. CHAST

D. H. C. Riley of Regina was in Toronto December 2, attending a Red Cross conference on the proposal to provide blood for transfusions to the hospitals of Canada.

Dr. and Mrs. A. L. Danard of Owen Sound celebrated their golden wedding in Christmas week and received congratulations from many of Dr. Danard's colleagues throughout the Province,

Dr. George S. Young has given up his rooms in the Toronto Medical Arts Building. For wany years Le

en over, a large fracti e as consulting physician besides sum, largely of his time and energy to the work of the I anadian Medi al Association and its Optario branch La has retirement be will still maintain his interest in the Are lemy and the Canada Cancer Society and will also be available for bedside consultations.

Di Peter Cameron who has been working in Christie Street Hospital, Toronto since his demobilization bas Lean transferred to Belcher Hospital in Calgary

Dr. James W. Ross who served as chief in surgery at Camp Borden and Toronto Military Hospital during the war has returned to his post as chief of surgical service No. 2 in St. Michael's Hospital, Toronto.

The Medical History Club of Toronto heard a paper by Dr. P. C. Trebilcock at its December meeting. subject was "The first hundred years of Moorfields". The science of ophthalmology owes so much to this famous centre that an account of its origin and growth and sketches of the men who laid the foundations of its development made the essay important aside from the interest it awaked.

A conference of Provincial secretaries of the Canada Cancer Society was held in Toronto early in December. A week was spent in discussing problems of organization for a nation-wide campaign for membership in the society which is to be made in April. Dr. George S. Young, past president, and Mrs. Young entertained the secretaries at dinner and Mr. F. C. Stepherson. London, the new president, presided

The Academy of Medicine. Toronto, had thr tinguished guest speakers in December. Dr. R. a. a. Smithwick, Professor and Chairman of the Depart at of Surgery, Boston University School of Wed lectured on "Surgery of the autonomic syst Hans R. Sauer of Roswell Park Memorial Instit to Buffalo, on "Diagnosis and treatment of tumours of the bladder' and Dr. George Smelzer, Institute of Ophthalmology, New York, read a paper on "Experimental evophthalmos".

The Workmen's Compensation Board of Ontario has been for some years endeavouring to raise the standards of treatment of fractures and improve results in other types of traumatic surgery. Some years ago Dr. John Laing McDonald was made consultant to Some years ago the Board and various measures were adopted to supervise treatment of serious injuries to workmen and, especially, to check the management of fractures. As a further development of this policy the Board arranged for a four day school of instruction, January 21 to 24 inclusive, in Toronto. They were fortunate in securing the services of Sir Reginald Wats in Jones, B.Sc., M.Ch. (orth.), F.R.C.S., who is in Canada to conduct the course.

The Board is to be highly congratulated on its enterprise in bringing so eminent a surgeon and teacher to give the instruction. The industrial sur-geons throughout the Province who will benefit by it are also to be congratulated on the unique opportunity afforded them.

M. H. V. Camenon

Quebec

When a Lospital with a history like that of the Montreal General Hospital celebrates the Sird birthday of one of its most rotable nurses, it brings out striking links with the past. This was the case on Saturday afternoon. Desember 14, 1946, when Miss Jennie Webster, a former night superintendent of the Hospital. beld a birthday At Home in the Nurses Residence for those who had been housemen during her long period of service: she had always referred to them and still does, as "ber dostors", and those qualifying to belong to the group well remember the solicitude as well as the admonitions with which she followed them. She is now confined to her wheel chair with arthritis, but is as cheerful and as bright as ever. Her celebration brought together a large group of men numbering over one hundred, led in years by Dr. A. T. Bazin whose signature for 1894 in the visitors' book easily surpassed the record of anyone else, although there were still a few who could not be present who could have equalled that.

Tribute to Dr. Wesley Bourne A group of Anæsthetists in Montreal have brought to our attention the following letter which was sent to Dr. Wesley Bourne by Dr. Georges Cousineau, Secretary of the Quebee Section of the Canadian Society of Ancesthesia. The ineident is judged worthy of report as illustrating the harmony of relationship between the French and English-speaking groups in Quebee, Incidentally also it is a very pleasant and fully deserved tribute to Dr. Bourne.

"A notre dernière rénnion de la section Québecquoise de la Société Canadienne d'Anæsthésie, il est proposé et adopté à l'unanimité qu'un vote de remereie-ment soit adressé au Doeteur Wesley Bourne qu'a bien voulu aller nous représenter à Londres, à l'occasiou de la célébration du Centenaire de la découverte de l'éther. A cette occasion, spontanément tous les membres présent détient les cordons de leur bourse et vons offre, mon cher Docteur, l'expression tangible de leur reconnaissance et une charge de vous remettre le chèque ci-inclus.

Veuillez, cher confrère aîné, accepter ce modeste cadeau de vos amis sincères, les Anæsthésistes de Québec. Nous sommes fiers, nous sommes reconnaissants et nous voulons suivre toujonrs (c'est à vous maintenant que nous appliquons cette expression que vous appliquiez autrefois au Docteur Laroque) notre 'panache blanc',''

On commencera bientôt, à Drummondville, la construction d'un nouvel hôpital qui coûtera près d'un million de dollars. Un hôpital est également projeté pour la région de St-Joseph d'Alma.

Le Dr Georges Deshaies de l'hôpital du Sacré-Cœur a été nommé professeur agrégé de chirurgie thoracique. Le Dr Jacques Bruneau de l'Hôtel-Dieu, a été nommé assistant-universitaire à la clinique chirurgicale de cet hôpital. L'hôpital Ste-Justine annonce la nomination de 5 nonveaux consultants: le Dr Georges Cloutier, en chirurgie plastique; le. Dr Jean Denis, en allergie; le Dr Réal Doré, en chirurgie du goître; le Dr Mereier Fauteux, en chirurgie eardio-vasculaire et le dentiste Lucien Reeves en chirurgie maxillaire. Toutes ces nominations sout de l'Université de Montréal.

Le Dr Valmore Latraverse était le secrétaire frauçais du premier congrès pan-américain d'O.R.L. tenu à Chicago en octobre dernier.

La Faculté de médecine de l'Université de Mon-tréal vient de faire paraître le premier numéro de son Bulletin,-16 pages, qui paraîtra trois fois l'an.

Le Dr Paul Bourgeois de l'hôpital Notre-Dame vient d'être élu membre correspondant étranger de la Société française d'Urologie. JEAN SAUCIER

General

Award to Dr. Routley.—We feel that our readers will be interested in the following letter recently received by our General Secretary.

"We have great pleasure in informing you that our Board of Directors at their sitting of September 21. in recognition and appreciation of your personal and continuous efforts has awarded you the Greek Red Cross's Silver Medal, the highest reward of the Society and has instructed us to convey to you their sincere congratulatious for this distinction so highly deserved.

> (signed) A. PHILON, Preident (signed) C. AGAPITOS, Secretary General

Croix Rouge Hellenique"

Atheus, October 22, 1946.

The World Medical Association.—The second meeting of the Organization Committee of the World Medical Association was held in Paris, France, on November 15 and 16, 1946, with the following members present: T. C. Routley, Canada, (Chairman); Paul Cibrie, Paris, and Chas. Hill, London, (Joint Secretaries); D. Knutson, Sweden; P. Glorieux, Belgium; O. Leneh, Switzerland, (Hon. Treasurer); J. A. Pridham. Great Britain; A. Zalor, Czeehoslovakia; F. Decourt. France.

Regrets were received from L. G. Tornel of Spain

and I. Shawki Bey of Egypt.

Considerable time was occupied with the examination of the proposed Constitution and By-Laws which, upon request, had been prepared by Dr. Cibrie and Dr. Hill. The amended document will be circulated to the constituent national medical associations and will be reviewed again by the Committee at its next meeting which it was proposed should be held in London on April 15 and 16, 1947. It was agreed to communicate with all national medical Associations who were invited to the London Conference in September, 1946, setting forth the aims and objects of the Association and urg-

ing that membership be completed.

The Committee was pleased to be informed that, since its first meeting in September, the national medical associations of the following countries had joined the Association: the United Kingdom; Belgium; the United States of America; Canada. The Committee unanimously agreed to invite the American Medical Associa-

tion to appoint a member to the Committee.

Note—Subsequently, the American Medical Association appointed to the Committee one of its Trustees in the person of Dr. Louis Bauer of New York who is also President-Elect of the New York State Medical Association.

On invitation, Dr. Cibrie was appointed an observer to the first General Assembly of the United National Educational Scientific and Cultural Organization, meeting in Paris in November and December, 1946.

The Chairman reported upon the meeting of the Interim Commission of the World Health Organization which he had attended in Geneva, November 4 to 13,

1946.

The Committee hopes to complete the drafting of the Constitution and By-Laws and other necessary arrangements for the World Medical Association to hold its inaugural meeting in Paris in the autumn of 1947.

S.S. Frederick Banting.—The following note has been sent us by Dr. J. R. Williams, Rochester, N.Y. The Frederick Banting was delivered to the British Government, under Lend-Lease, on December 30, 1943. She has since been operated by them to ports in Japan, China, Australia, Iudia, and the Mediterranean, one of her recent trips being from Liverpool to Halifax.

The following were received into Fellowship in the American College of Surgeons at the Convocation on December 20, 1946: Ontario.—Harry D. Alexander, Brantford; Walter F. Charteris, Chatham; Robert B. Brantford; Walter F. Charteris, Chatham; Robert B. Hare, Simcoe; William T. Haslett, London; Ernest Clifford Janes, Hamilton; Hewson I. J. Kellam, Ottawa; Russell K. Magee, Peterborough; Angus D. McLaehlin, London; Harold F. Mowat, Copper Cliff; J. Reginald Rogers, London; Alexander G. Smith, North Bay; W. P. Tew, London. Quebec.—Lionel Groleau, Sherbrooke; John S. Henry, Montreal; Gerard A. P. Hurley, Montreal; Everett F. Hurteau, Montreal; Clarke K. McLood, Montreal; François Roy, Quebee City; Jacob C. Sehwartzman, Montreal.



Secondary Anaemia



IRON

LIVER

AND

VITAMIN B

FACTORS



AYERST, McKENNA & HARRISON LIMITED

Biological and Pharmacourical Chemists

MONTREAL CANADA

British Commonwealth and Empire Health and Tuberculosis Conference, 1947. — A Conference on Tuberculosis, arranged by the National Association for the Prevention of Tuberculosis of Great Britain, will be held in London on July 8, 9, and 10, 1947. The Conference will deal with tuberculosis in all its aspects, but with special reference to the problem as affecting the British Commonwealth, and representatives from all the Dominions and Colonies have been invited.

The sessions will include discussions on Tuberculosis

in the British Commonwealth and the Colonial Tuberculosis Services; Sanatorium design; after-care and rehabilitation; the psychology of tuberculosis; new discoveries in the prevention and treatment of the disease, and the National Health Service and its effect on tuber-

culosis schemes.

Plans are being made for overseas guests to see something of the anti-tuberculosis work for which Great Britain is famous, and will include visits to Sanatoria, hospitals and clinics, and demonstrations of various kinds. The Conference is open to both doctors and laymen, and fuller particulars can be obtained from the Secretary-General, National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C. 1.

Civil Aviation Medicine.—To advise the Department of Transport concerning all health aspects of civilian flying, the Department of National Health and Welfare has established a new division of civil aviation medi-cine. A competition for the post of chief of the division has just been announced by the federal Civil Service Commission.

The new division will be responsible for directing the development and maintenance of medical standards for persons engaged in civil aviation. It will draw up regulations to protect the safety, comfort and health of flying personnel from a medical standpoint and will advise on the general aspects of all problems connected with the health of travellers by air. These include oxygen supplies, air sickness, and colour blindness. The division will work closely with the Department of Transport, the R.C.A.F. and private organizations doing research in this branch of medicine. Chief of the division must be a medical doctor, preferably with post-graduate training, with at least four years' experience in aviation medicine and substantial flying experience.

The annual meeting of the Northwest Conference in Dental Medicine is to be held at Harrison Hot Springs Hotel, Harrison Hot Springs, B.C., May 18 to 21 inclusive, 1947. For further particulars contact the Secretary: C. R. Hallman, D.M.D., 4298 Dunbar Street, Vancouver, B.C., Canada.

American Board of Ophthalmology.-A directory of all diplomates to January 1; 1947, will be published shortly after that date. This directory will be arranged alphabetically and geographically. No biographical material will be included. Every effort will be made to make this directory accurate and diplomates who have not already done as about a provider the Board of the second strength of t not already done so should notify the Board office at once stating their name and address exactly as they wish them listed. Price is \$3.00 postpaid.

Note: Diplomates are requested to keep the Board office informed of all changes of address so that the

files may be kept up-to-date.

1947 Examinations.—Atlantic City, June 8 to 13; Philadelphia, June 13 to 16; Chicago, week of October 8. Executive office: American Board of Ophthalmology, Cape Cottage, Maine.

A whistle that emits sound waves of too high a frequency to be detected by luman ears, but which does irritate pigcons, is to be used experimentally to drive out perching pigeons on a public building in the west.

BOOK REVIEWS

Allergy in Practice. S. M. Feinberg, Associate Professor of Medicine and Chief of the Division of Allergy, Northwestern University Medical School, with the collaboration of O. C. Durham, Chief Botanist, Abbott Laboratories, C. A. Dragstedt, Professor and Chairman of the Department of Pharmacology, Northwestern University Medical School. 838 pp., illust., 2nd ed. \$10.50. The Year Book Publishers, Inc., Chicago, 1946.

The author and collaborators have succeeded admirably in covering not only the so-called "conventional phases" of allergy; but they have brought the text up-to-date in this rapidly extending field. A discussion on histamine in anaphylaxis and allergy, by Dr. Carl Dragstedt is included, and one on histamine antigens. A comprehensive bibliography is available at each chapter's end; in spite of the necessity for condensation iu the text (in attempting to cover the field in one volume), material is presented in an interesting and lucid manner. It is one of the most generally useful volumes available on the subject.

Bacteria in Relation to Nursing. C. E. Dukes, Lec-turer in Bacteriology to Sister Tutors at King's College for Household and Social Science. 186 pp., illust. 12s. 6d. H. K. Lewis & Company Limited, London, 1946.

This book is written primarily for nurses. It starts at the beginning and carries the student through the methods of studying bacteria, their classification and identification. Helpful chapters are included on immunity, ou sterilization, cross infection and the use of disiufectants and antiseptics. A major section deals with the collection and examination of specimens. little is included on virus diseases. The work is a practical one, has good though limited illustrations and can be recommended for use in schools of nursing or for the training of technicians.

Gynæcology for Nurses. A. D. Campbell, Gynæcologist and Obstetrician-in-Chief, Montreal General Hos-pital, Montreal; and M. A. Shannon, R.N., Super-visor of the Gynæcological Ward, Montreal General Hospital. 274 pp., illust. F. A. Davis Company, Philadelphia, 1946.

Probably in no other field of medicine has there been more change than iu gynecology, so that the old has more rapidly become obsolete. Dr. Campbell has succeeded in presenting the new knowledge in clear and authoritative fashion. Unit One which deals with anatomy, physiology and endocrinology is especially good. The other units deal with normal and abnormal pregnaucy, diseases and disorders, office gynecology and the hospital patient and procedures. The authors have had assistance from several of their colleagues of deservedly high reputation. Coloured plates depicting an unruptured ectopic pregnancy and cancer of the cervix are worthy of praise.

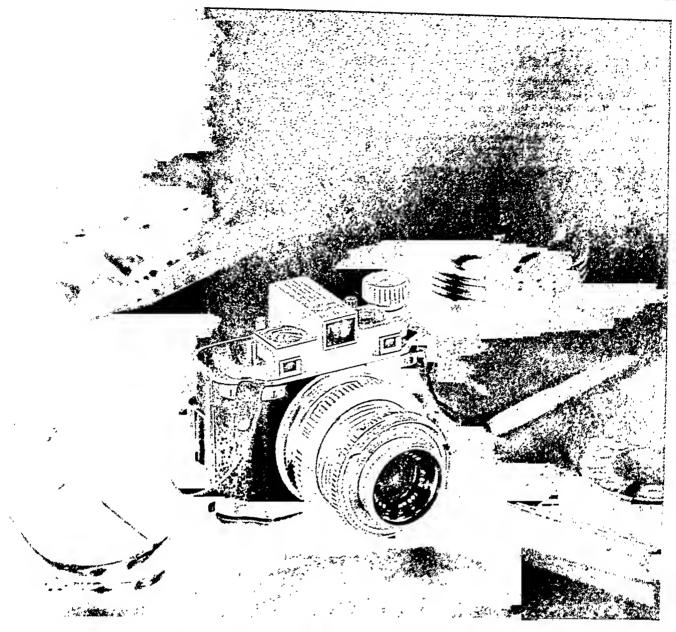
Since this book has grown out of the notes of lectures to nurses there is the occasional clumsy sentence. ever, these are minor defects which detract only slightly

from the value of the work.

Though the book was written for nurses and will prove very useful to them, yet medical students, interns and even doctors long in practice could learn much from this able presentation of modern gynecology.

Introduction to Clinical Neurology. G. Holmes, M.D., F.R.S. 183 pp., illust. 12s. 6d. E. & S. Living. stone Ltd., Edinburgh, 1946.

The clinical teaching of Dr. Holmes at the National Hospital, Queen Square has attracted postgraduate students to London for years and many Canadians are deeply in his debt. In this book he now presents to a wider circle, the experience and methods in clinical



Precision Instrument... KODAK MEDALIST II

TERE is a precision instrument that combines "big camera" capabilities with the scope and accuracy of the finest miniature. With this new Kodak Medalist II you can enrich your case hisories with invaluable photographic data...record, for example, before-and-after sequences in black-and-white or color...set lown permanently details you wish to remember.

You'll find this same precision in everything Kodak makes. For Kodak production... whether it's photographic or radiographic... is subject to complete quality control... rigid inspection... constant research... Canadian Kodak Co., Limited, Toronto 9.

erving Medical Progress through Photography and Radiography

Major Kodak Products for the Medical Profession

Cameras – still and motion picture; cardiographic film and paper; photographic films—color, black-and-white (including infrared); photographic papers; photographic processing chemicals; photographic films; projectors – still and motion picture; Recordaks; synthetic organic chemicals; x-ray films; x-ray intensifying screens; x-ray processing chemicals.

Kodak

neurological examination which made his clinical rounds and discussions so illuminating and instructive.

This book is not a description of nervous diseases. It is a discussion of the production of neurological signs and symptoms. In this, the methods of neurological examination and history-taking are outlined. The anatomical and physiological knowledge essential to the understanding of paralyses, ataxia, convulsions, sensory deficits and reflex changes are incorporated in chapters which discuss these disorders. Similarly the pathogenesis of visual disturbances, ocular palsies, postural and vestibular disorders and speech are discussed. An excellent chapter on agnosia and apraxia, a review of symptoms in bladder and rectum, autonomic system and mental state conclude this thiu volume. The whole book is outstanding in the simple clarity with which these complex disorders of structure and functions are resolved into their anatomical and physiological components. There is a lucidity here that is not common in neurological writings and which springs from Dr. Holmes' scholarship and experience in clinical teaching. For all medical students and graduates this book will be a major addition to their libraries.

Medicine as a Profession. G. H. Murphy, Professor of Clinical Surgery, Dalhousie University, Halifax. 74 pp. \$1.50. The Ryerson Press, Toronto, 1946.

This is a pleasantly discursive little book in the form of letters to medical students, a kind of "Virginibus puerisque". Indeed, the opening sentences paraphrase the first paragraph of Stevenson's famous essay. The book is full of the philosophy of a man who can look back on a full and well spent eareer. It is aimed at the student, but will give older men also something to think about.

Penicillin, Its Properties, Uses and Preparations. Published by direction of the Council of the Pharmaceutical Society of Great Britain. 115 pp., illust. 10s. 6d. The Pharmaceutical Press, London, 1946.

This volume was prepared for the guidance of pharmacists and general practitioners in the preparation and use of penicillin. It includes an interesting historical summary and gives a fairly full account of the methods of manufacture, standardization and preparation of the various penicillin compounds. The pharmacology and chemistry of the drug is also discussed: there is, however, no reference to the recently accomplished synthesis of penicillin. This is unlikely to be of practical importance for some time to come.

Only 24 of the book's pages are devoted to the clinical use of the penicillin group; this diminishes its value to the clinical physician. These few pages give an up to date summary of the drng's uses. A fairly extensive bibliography is appended. There is also a short chapter on legal considerations governing the preparation and dispensing of penicillin in Great Britain and America.

Penicillin. Under the General Editorship of Professor Sir Alexander Fleming, Professor of Bacteriology in the University of London, St. Mary's Hospital, London. 380 pp., illust. \$7.50. Butterworth & Co. (Publishers), Ltd., London; Butterworth & Co. (Canada) Ltd., Toronto, 1946.

Sir Alexander Fleming, in the preface to this volume on penicillin of which he is the editor, has best reviewed the book by stating: "This series of articles gives a fair presentation of penicillin therapy as it exists today". Twenty-seven authors have collaborated to provide a succinet, readable account of all aspects of penicillin. Fleming has written an interesting chapter on the History and Development of Penicillin: also the section on the Exeteriological Control of Penicillin Therapy.

The first hundred pages are concerned with the mannfacture, chemistry, pharmacology and methods of administration. The remainder of the book consists of 21 chapters regarding the use of the drug in the varied surgical and medical conditions in which it is indicated. The emphasis throughout is clinical rather than

Although difficult to pick out separate chapters for special comment, it is evident that each is written by an authority in his field, and each treatise is characterized by a commendable brevity and elarity. This excellently arranged and authoritative volume will be well received by the profession.

Practical Malariology. Col. P. F. Russell, M.C., A.U.S., Parasitology Division, the Army Medical School, Field Staff, International Health Division, Rockefeller Foundation (on leave); L. S. West, Hend of Biology Department, Northern Michigan College of Education; and R. D. Manwell, Professor of Zoology, Syracuse University, New York. 684 pp., illust. \$9.00. W. B. Saunders Company, Philadelphia and London; McAinsh & Co., Limited, Toronto, 1946.

This is another in the excellent series of military medical manuals prepared under the auspices of the Division of Medical Sciences of the National Research Council of the United States during World War II. However, as the authors point out, it was completed after the end of the war and, therefore, written from the standpoint of civilian as well as military needs.

the standpoint of civilian as well as military needs.

The subject matter is divided into six sections, the first part dealing with the parasite and including a description of the morphological and physiological characteristics of the plasmodia and a brief, but useful, description of plasmodia found in animals other than man. This section closes with a discussion of field and laboratory techniques for demonstrating the malarial parasite. The second section discusses the mosquito host of the malarial parasite and deals first with the morphology- and taxonomic characteristics of all stages of the life cycle; it then proceeds to discuss mosquito bionomics, and a useful inclusion in this part is the extensive number of photographs showing mosquito breeding sites. Third, the mosquito distribution throughout the world is discussed, and finally there is a most extensive discussion of field techniques for mosquito The third section-deals with malaria as it affects its intermediate host, that is, man. It includes a discussion of the pathology, symptomatology and treatment of malarial infections. Blackwater fever is alsodealt with in this section. Section four is entitled "The community" and deals with the epidemiology of malaria from the standpoint of man, the mosquito and the environment. It includes a useful discussion on the technique of carrying out malaria surveys. Section five discusses drug prophylaxis and the control of the vector mosquito and its larval stages. Section six deals chiefly with the question of therapeutic malaria. The appendix contains a useful key to the adult mosquitoes of the

This manual presents a useful summary of the more recent advances in the field of malariology and is of particular value in that it depicts the lacune still existing in our knowledge of the various phases of malariology. The reviewer feels that the section dealing with the clinical aspects of malarial infections is not as comprehensively dealt with as the other sections included in this text. However, for any one starting out on a malaria control campaign this manual should prove invaluable. It should probably be mentioned that since the book was published, paludrine, which is only mentioned casually in the text, has been shown by J. H. Fairley to hold promise as one of the most useful drugs available both for the prophylaxis and treatment of all species of malaria. This book may unhesitatingly be recommended.

Textbook of Clinical Neurology. J. M. Nielsen, Associate Medical Professor of Medicine (Neurology), University of Southern California. 699 pp., illust., 2nd revised ed. \$7.50. Paul B. Hoeber, New York. 1946.

The presentation of the material is rather unique. The neurologist will find the book of interest if he wishes to look up the author's experience with lesions causing aphasia or related syndromes. For the general

CRYSTALLINE PENICILLIN — CONNAUGHT

Research in the Connaught Medical Research Laboratories now makes available to the medical profession in Canada a highly purified penicillin in crystalline form.

ADVANTAGES

HIGH PURITY—This product is supplied as a white crystalline powder.

MINIMUM OF PAIN OR LOCAL RE-ACTION—Because af its high degree af purity, pain on injection is seldom reparted and local reactions are extremely rare.

STABLE AT ROOM TEMPERATURE— Crystalline penicillin is heat-stable, and in the dried farm can be safely stared at raam temperature far at least three years. No refrigeration is required except when the material is in solution.

PHOTOMICROGRAPH
OF PENICILLIN CRYSTALS

HOW SUPPLIED

Crystalline Penicillin—Connaught is available from the Laboratories in sealed rubber-stoppered vials of 100,000, 200,000, 300,000 and 500,000 International Units.

CONNAUGHT MEDICAL RESEARCH LABORATORIES

University of Toronto

Toronto 4, Canada

practitioner this part of the presentation is too techuical and deals with rare clinical entities. The material dealing with the various diseases of the nervous system is not well organized and sometimes one has the impression that the author set his thoughts down as they came to mind. Many of these thoughts as recorded are very good, but in most instances need amplification. For example, he states that he has seen convulsions ended by appendectomy in three cases. Personal experiences such as this are frequently recorded in great detail throughout the book. Such statements have no place in neurological texts unless they are thoroughly dis-cussed. There is a great tendency throughout the book to describe the many syndromes which honour neurologists by name, but which many of us strive to forget in the hope of attaining an outlook on neurology based on neuroauatomy and neurophysiology. For example, many so-called syndromes of the brain stem are described, but there is nothing much to guide the practitioner in regard to treatment or prognosis even if he might succeed in calling one of them by name in a given patient. The discussion on neurosyphilis leaves much to be desired and the discussion of treatment might well be considered quite out of date even before the days of penicillin. No emphasis is placed on the importance of giving fever therapy early in neurosyphilis. Malaria is mentioned very casually as a method of treatmcut. The chapter on head injuries is rather incomplete. In some instances the author seems to have lost perspective and for example gives two pages to the discussions of Thomsen's disease while a paragraph is given to a relatively more common disease myotonia atrophica. Some chapters were quite well presented and the reviewer found the text rather interesting to read but not as helpful a reference as he had hoped. Neurologists will find it worthwhile to have a copy at hand and some general practitioners may find it interesting.

The Human Ear. S. L. Polyak, Professor of Anatomy, the University of Chicago; G. McHugh, Medical Illustrator, the University of Chicago Clinies; and D. K. Judd, Assistant Professor Otolaryngology, the University of Chicago. 136 pp., illust. \$10.50. Published under the Auspices of Sonotone Corporation, New York, 1946. Distributed by T. H. McKenna, Inc., New York.

One would expect a monograph on the auatomy of the ear to be a detailed compendium for the specialist. This book, while valuable to the otologist, is refreshingly simple and straight-forward, so that it is also useful to the practitioner and student. It consists of a series of excellent illustrations with a text designed principally as a commentary on the drawings. The transparent paintings which superimpose one on another to build up the region are exceedingly detailed, but this is necessary in such a complex organ, and they are extremely factual. By contrast, the text seems almost oversimple, and is of considerable help in providing understanding of the drawings. On the whole this is an excellent treatise on the ear as well as a valuable new method of presentation.

BOOKS RECEIVED

- Studies in Hypertrophy. I. Harris, Honorary Director, Institute for Prevention of Disease; Honorary Physician, Liverpool Heart Hospital, in co-operation with J. T. Ireland, Leverhulme Research Fellow; G. V. James, Maurice Stern Research Fellow; E. C. Lowe, Director, Pathological Department, Southport Infirmary, an C. E. Vernon, Research Fellow. 114 pp. \$3.75. John Wright & Sons Ltd., Bristol; Macmillan Co. of Canada Ltd., Toronto, 1946.
- Tumores Broneogenicos. H. D. Aguilar, Encargado del Departamento de Cirugia Toracica, Servicio del Dr. R. Finochietto, Hospital Rawson. 450 pp., illust., Libreria Y Editorial "El Ateneo" Buenos Aires, 1946.

- Aids to Medical Diagnosis. G. E. F. Sutton, Hon. Physician, Bristol Royal Hospital. 308 pp., illust., 6th ed. \$1.25. Baillière, Tindall & Cox, London; Macmillan Company of Canada, Toronto, 1946.
- Aids to Tropical Hygiene. Edited by L. Nicholls, Late Lecturer in Tropical Diseases, Ceylon Medical College. 217 pp., illust., 3rd ed. \$1.25. Baillière, Tindall & Cox, London; Macmillan Company of Canada, Toronto, 1946.
- British Encyclopædia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynæcology and Other Special Snbjects. Medical Progress, 1946. Editor in Chief, Rt. Hon. Loyd Horder, Physician to the King. 498 pp. \$10.00. (Supplement Included). Butterworth & Co. (Publishers), Ltd., London, 1946.
- British Encyclopædia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynæcology and Other Special Subjects. Cumulative Supplement, 1946. Editor in Chief, Rt. Hon. Lord Horder, Physician to the King. 267 pp. Butterworth & Co. (Publishers), Ltd., London, 1946.
- Centennial of Surgical Anæsthesia. An Annotated Catalogue of Books and Pamphlets Bearing on the Early History of Surgical Anæsthesia. Compiled by J. F. Fulton, M.D. and M. E. Stanton, A.B. 102 pp. Heury Schuman, New York, 1946.
- Chemotherapy. Sir Alexander Fleming, Professor of Baeteriology, University of London. 39 pp., illust. 2s. University Press, Cambridge; Macmillan Company of Canada, Toronto, 1946.
- Clinics. Vol. v, No. 2. Edited by G. M. Piersol, Professor of Medicine, Graduate School of Medicine, and Professor of Clinical Medicine, School of Medicine, University of Pennsylvania, Philadelphia, Pa. 284 pp., illust. \$2.00. J. B. Lippincott Company, Publishers, Philadelphia, Pa., 1946.
- Edinburgh Postgraduate Lectures in Medicine. Vol. 3, 1942-43. 586 pp., illust. 15/-. Published for the Honyman Gillespie Trust by Oliver and Boyd, Edinburgh, 1946.
- Gynæcological Endocrinology for the Practitioner. P. M. F. Bishop, Lecturer in Applied Physiology, Guy's Hospital Medical School. 124 pp. \$1.75. E. & S. Livingstone, Edinburgh; Macmillan Company of Cauada, Toronto, 1946.
- Gynakologische Diagnostik. W. Neuweiler, a.o. Professor fur Geburtshilfe und Gynakologie an der Universitat Bern. 474 pp., illust. Fr. 58. Medizinischer Verlag Hans Huber, Bern; Grune & Stratton Inc., New York, 1946.
- Health Insurance in the United States. N. Sinai, O. W. Anderson, M. L. Dollar, School of Public Health, University of Michigan. 115 pp. \$1.50. The Commonwealth Fund, Now York, 1946.
- Les Stomatites. Conférences des Stomatologistes des Hôpitaux de Paris. MM. Lebourg, Hénault, Lambert, Gernéa, Friez, Hennion et Vrasse, Mme Chaput. 214 pp. 220 fr. Masson et Cie, Editeurs, Paris, 1946.
- Lip Reading. M. Faircloth. 64 pp., revised ed. 75c. The Ryerson Press, Toronto, 1946.
- Manual of Tomography. M. Weinbren. Adviser in Radiology, Union Defence Force; Assistant Radiologist, the Middlesex Hospital (London). 270 pp., illust. 45s. H. K. Lewis & Co. Ltd., London, 1946.

The Royal College of Physicians and Surgeons of Canada ANNOUNCEMENT OF 1947 EXAMINATIONS

FELLOWSHIP IN MEDICINE

Fellowship may be granted in MEDICINE and in the following Medical Specialties:

Dermatology and Syphilology Neurology and Psychiatry

Pardiatries. Radiology

FELLOWSHIP IN SURGERY

Fellowship may be granted in SURGERY and in the following Surgical Specialties:

Neurosurgery

Orthopædic Surgery

Obstetrics and/or Gynæcology

Urology

CERTIFICATION OF SPECIALISTS

The following Specialties have been approved for certification:

Dermatology and Syphilology

General Surgery Internal Medicine

Neurology and/or Psychiatry

Neurosurgery

Obstetrics and/or Gynæcology

Ophthalmology

Orthopædic Surgery

Otolaryngology

Padiatrics

Pathology and/or Bacteriology Physical Medicine

Plastic Surgery

Radiology: Diagnostic and, or Therapeutic Thoracic Surgery

Urology

Applications must be received before June 30th for the Examinations which will be held in October and November, 1947.

Information regarding the dates of the Fellowship and the Certification Examinations, copies of the Regulations, and Application Forms, may be obtained from:-

JOHN E. PLUNKETT, M.D., F.R.C.P.[C],

Honorary Secretary,
The Royal College of Physicians and Surgeons of Canada,
150 Metcalfe Street, Ottawa, Canada



PRINCIPLES IN ROENTGEN STUDY OF THE CHEST

An outstanding authority By William Snow. here presents a long-needed book. He shows how to obtain the fullest advantage of roentgen interpretation in clinical medicine by a correlation of the history, physical signs and knowledge of the physiology and pathology. He also outlines some basic principles in the role of the bronchial tree. 415 pages, 508 excellent illustrations, 1946. \$12.50.

ROENTGEN DIAGNOSIS OF DISEASES OF THE GASTROINTESTINAL TRACT

By John T. Farrell. This practical book by a by John 1. Patrent. This practical book by a leading authority is a guide for procedures to be carried out in the examination of the various parts of the tract. It also gives the fundamental facts in the diagnosis of particular diseases 273 pages, 100 illustrations, 1946 \$6.75.

Write for our Catalogue of Medical Books

THE RYERSON PRESS TORONTO

THE MACMILLAN COMPANY OF CANADA

70 Bond Street

Toronto 2, Ont.

THREE IMPORTANT NEW BOOKS NOW AVAILABLE

THE ESSENTIALS OF OBSTETRICS AND S5.50 GYNECOLOGY

By W. A. Scott and H. B. Van Wyck, Faculty of Medicine, The University of Toronto.

This eagerly awaited text sets out one saly and clearly the fundamentals of Obstetrics and Gyresol 28. and will be of value to the practitioner as well as to the student.

EYE SURGERY \$11.00

By H. B. Stallard, M.B.E., M.D., (Cantab.), F.R.C.S. (Eng.).

This outstanding text covers the principles of operative surgery of the eye and the structures related to. and corcerred with, its furction and protection.

THE MEDICAL ANNUAL, 1946

This invaluable publication contains a thorough review of nedical progress during the past year.

JOURNAL OF

Canadian Medical Association

Editorial offices-3640 University St., Montreal General Secretary's office - 135 St. Clair Ave. W., Toronto

Subscription rates: The Journal is supplied only to paid up members of the Canadian Medical Association with the following exceptions: for medical libraries, hospitals and doctors residing outside of Canada, the annual subscription is \$7.50; for medical students residing in Canada there is a special rate of \$2.50 per annum. All subscriptions and related correspondence should be addressed to the General Secretary's office at 135 St. Clair Avenue West, Toronto 5, Ontario.

Contributors: Articles are accepted on condition that

they are contributed solely to this *Journal*. Reproduction of material in this *Journal* for com-

mercial purposes is not permitted.

Manuscripts must be typewritten, double spaced, and

the original copy.

References: in the case of a journal arrange as follows: author (Jones, A. B.), title, journal, volume, page, year. In the case of a book: Wilson, A., Practice of Medicine,

Macmillan, London, 1st ed., p. 120, 1922.

Illustrations: A limited number will be accepted.

Photographs should be clear: drawings should be in india ink on white paper. All unmounted. Legends to be typed separately.

Reprints: May be ordered upon forms sent with galley proofs.

ADVERTISEMENTS

Advertising copy, layout and cuts should be sent direct to Murray Printing Co., 192 Spadina Ave., Toronto 2-B to reach Toronto by the 10th of the month preceding date of issue.

Classified ads payable in advance.

Rates: \$2.50 for each insertion of 40 words or less, additional words 5c each.

News: The Editor will be glad to consider any items of news that may be sent in by readers.



OUR VAULTS WILL SAFEGUARD YOUR GOVERNMENT BONDS

Keeping your government bonds and other valuables around the house is just asking for trouble, especially when protection costs only a trifle at the Bank of Montreal. Join the thousands of carefree B of M customers who safeguard their bonds and valuables in our

vaults or in their personal Safety

Deposit Boxes.

If you are short of money, don't sell your Government Bonds . . . you can borrow on them at specially low rates.

ANK OF MONTREAL

working with Canadians in every walk of life since 1817

Classified Advertisements

NOTICE.—TUTORIALS IN SURGERY in preparation for the final examinations for the F.R.C.S. (Canada) will be held at the Montreal General Hospital during 1947, and will consist of a course in preliminary reading, beginning in April and lasting five months, and a practical session during September and October. The number of candidates accepted will be limited to ten. Application should be made to Dr. S. Jameson Martin, Montreal General Hospital.

WANTED. - Three Physicians, Interested and preferably trained in tuberculosis work, for staff positions in Sanatorium, one with qualifications to act as Medical SuperIntendent of 50 bed tuberculosis hospital. For further particulars, apply to Dr. E. L. Ross, Medical Director, Sanatorium Board of Manitoba, 668 Bannatyne Avenue, Winnipeg, Manitoba.

WANTED .- Royal College certified Specialist in Internal Medicine (Exam.), age 34, graduate and postgraduate training in leading European medical centre, eight years' practice in Canada, experienced in electrocardiography, wishes to associate with group or well qualified surgeon in Western Canada, Saskatchewan except. Write full details to Box 540, Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Clinic group in busy Ontarlo city requires the services of a qualified internist, holding either certification in medicine or fellowship in the Royal College of Physicians of Canada. Apply Box 542, Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Obstetrician and Gynecologist desires clinic posi-tion or partnership. Excellent general training and practice previous to specialization. Specialized training in recognized Residencies. Now eligible for American Board or Canadian certification in Obstetrics and Gynecology. Apply to Box 541. Canadian Medical Association Journal, 3640 University Street, Montreel

WANTED.—(1) A House Surgeon and Anæsthetlst, (Now vacant). Salary £600 per annum. Experience in modern methods of anæsthesia essential. Preference given to candidates who hold Diploma in Anæsthesia.

(2) A House Surgeon (Vacant 28th January, 1947). Salary £450 per annum. Preference given to candidates who have had experience in administering anæsthetics.

experience in administering anæsthetics.

In each case quarters fully furnished for a single man, free water and lighting allowance are provided. No local rates The appointments, which are renewable, will be for either 1½. 2 or 3 years, subject to 3 months' notice on either side to terminate engagement. Candidates must state whether they wish to be engaged for 1½, 2 or 3 years. Single transport direct to Barbados will be paid, a proportionate part to be refunded if term of service for which candidate is engaged be not completed, except engagement is relinquished on medical certificate of ill health due to service. Return transport paid on satisfactory completion of contract or on resignation on medical certificate of ill health due to service. Canadian graduates must hold qualifications registrable in England. Candidates holding a United States degree must be registered in State of New York. Applications, stating age and date of graduation, accompanied by a recent photograph, a medical certificate of physical fitness at time of application and recent professional and personal testimonalis, should be sent by air mail to Medical Superintendent, General Hospital, Barbados, B.W.I., from whom further particulars may be obtained. Applicants for post of House Surgeon and Anæsthetist should also forward a recent certificate of proficiency in administering anæstheties as Resident Anæsthetist of a Hospital of not less than 200 beds, or of a postgraduate course in Modern Anæsthesia at a recognized medical school.

WANTED.—Energetic young Doctor with special training in Obstetrics and Gynecology, by clinic group in Ontario clin-Contract on generous salary basis to begin. State qualifications, experience and marital status in reply to Box 510, Canadian Medical Association Journal, 3640 University Street, Montreal

CANADIAN CANCER SOCIETY.—Notice is hereby given that the Annual Provincial Meeting of the Saskatchewan Branch of the Canadian Cancer Society will be held at the Hotel Saskatchewan in the City of Regina, Saskatchewan, on Monday, the 10th day of February, 1947, at 8.00 p.m., to receive the report of the Board of Directors, the report of the Auditors of the Society, to elect two members of the Grand Council of the Society as provided by the Society's by-laws in that behalf, and to transact such other business as may properly come before the meeting. By order of the Board: Violet L. Williams, Provincial Secretary, 5 Credit Foncler Bullding, Reging, Saskatchewan.

Classified Advertisements

FOR SALE:—Mechanical rectifier in good condition: 100 K.V. 100 M.A. with 2 Kilovoltage selectors, direct reading Kilovoltageter. Milliamperage regulator, double scale Milliameter. Automatic overload circuit breaker, Exposuretimer with 2 scales—one 1-10 seconds, the other 1/100-1/10 seconds. Instantaneous Radiographic Fluoroscopic changeover device for spot film radiography. Tilte table with built in automatic high speed bucky. Fluoroscopic screen. Price \$600.00. Apply to Dr. G. Schilder, Room 327-30, 718 Granville Street, Vancouver, B.C.

WANTED.—Staff physician, for 200 bed tuberculosis sanatorium. Have new six room house or furnished suite available. Apply to Medical Superintendent, Fort William Sanatorium, Fort William, Ontario, giving full particulars re training, salary desired, etc.

WANTED.—Senior Intern to commence duties February 1st. Salary \$150.00 per month plus maintenance. Apply stating qualifications and experience to Superintendent. Oshawa General Hospital.

WANTED.—Am leaving present position need locum tenens until April 6th, 1947. Good possibility of permanent job if desired. R. M. Contract with Barrier Valley Municipality for \$5,750, per annum plus extras on surgery. Write for fuller details to Dr. M. Katz, McKague, Saskatchewan.

FOR SALE.—Well established lucrative practice in prosperous central Saskatchewan town of 1,200. Good mixed farming district. Local hospital in town. Residence and office combined. Six room house and three room office with separate entrance. Price reasonable. Apply to Box 539, Canadian Medical Associalion Journal, 3640 University Street, Montreal.

WANTED.—A young Medical Doctor to reside in the village of St. Martins, County of Saint John, New Brunswick. Parish will supply residence free of rent and local residents will arrange guarantee of part salary. Apply for further information to County Secretary, Court House, Saint John, New Brunswick.

WANTED.—Applications for the position of Executive Secretary of the College of Physicians and Surgeons of British Columbia will be received by the undersigned. Letters of recommendation, details of experience, qualifications, age, etc. and a recent photograph are requested with application. Salary to commence at \$500.00 per month, plus annual grant towards the establishment of an annuity. Applications must be in hand immediately to: A. J. MacLachian, M.D.. Registrar, College of Physicians and Surgeons of British Columbia, 203 Medical Dental Building, Vancouver, B.C.

WANTED.—Intern, Grace Hospital, Vancouver, B.C. Sixty-bed obstetrical hospital, \$25.00 monthly and maintenance.

WANTED.—Dictitian: large hospital. Niagara District; for Assistant's position. Salary \$100.00 to \$125.00 per month with full maintenance. Give all particulars in reply to Box 543. Canadian Medical Association Journal. 3640 University Street. Montreal.

H. K. LEWIS & Co. Ltd.

MEDICAL PUBLISHERS and BOOKSELLERS
LARGE STOCK OF WORKS ON
MEDICINE AND GENERAL SCIENCE
of all Publishers.

SECOND-HAND DEPT.: 148, Gower Street, Lenden, W.C.1.
Large stock of recent editions. Rare and out-of-print
books sought for and reported free of charge.

LONDON: 136 GOWER STREET, W.C.1

CARLEGRAMS-PUBLICAVIT WESTCENT-LONDON

UNIVERSITY OF LONDON OPHTHALMIC INSTITUTE of the

BRITISH POSTGRADUATE MEDICAL FEDERATION

MOORFIELDS, WESTMINSTER, AND CENTRAL EYE HOSPITAL
Gity Road, London, E.C. 1.

Applications are invited for the following whole-time Ophthalmic Appointments, as from 1st March, 1947.

- 1. FIRST ASSISTANT TO THE TEACHING UNIT.
- 2. SECOND ASSISTANT TO THE TEACHING UNIT.
- 3. FOUR REGISTRAR TUTORS.

Clinical tutorial instruction and research will comprise the work of these posts.

For full details of salary, duties, etc. apply to the Dean at City Road, London, E.C. 1.

FELLOWSHIP OF POSTGRADUATE MEDICINE

1, Wimpole Street, London, W. 1.

with which is associated many of the General and Special Hospitals in London, is making every effort to provide postgraduate instruction and will be glad to give information regarding the facilities available. It must, however, be understood that facilities are still greatly curtailed.

It is still impossible to arrange and publish the usual list of instruction for the whole year. Courses are arranged as it is found practicable to do so, and special attention is paid to the requirements of candidates for the M.R.C.P. (London) and F.R.C.S. (England) examinations.

Courses arranged by the Fellowship of Postgraduate Medicine are open only to Members; annual subscription, from month of joining, 10.16d.

The "Overseas Postgraduate Medical Journal" is published quarterly; annual subscription, 30%, post free.

MAURICE DAVIDSON, M.D., F.R.C.P., DAVID LEVI, M.S., F.R.C.S.

Honorary Secretaries

POST GRADUATE STUDY

For Canadian and American Practitioners

Are you preparing for any Medical, or Surgical Examination?

Send Coupon below for valuable publication

"GUIDE to MEDICAL EXAMINATIONS"

PRINCIPAL CONTENTS

The Examinations of the Qualifying Bodies.
The M.D. Degrees of all British and Colonial Universities.
How to pass the F.R.C.S. Examination.
The F.R.C.P. & S. of Canada.
The M.R.C.P. London and Edinburgh.
Diploma in Anæsthetics.
The Diploma in Tropical Medicine.
Diploma in Ophthalmology.
Diploma in Psychological Medicine.
Diploma in Child Health.

You can prepare for any of these qualifications by postal study at home and come up to Great Britain for examination. We specialize in Post-graduate tuition. Courses for all Canadian and U.S.A. qualifications,

19 Welbeck Street, London, W.1. Sir,—Please send me a copy of your "Guide to Medical Examinations" by return.

Name Address

Examinations in which interested _ .

THE SECRETARY
MEDICAL
CORRESPONDENCE
COLLEGE

Columbia University

NEW YORK POST-GRADUATE MEDICAL SCHOOL

ELECTROCARDIOGRÁPHY

Five Days - March 17 to 21, 1947

This course is designed for the general practitioner who is primarily interested in cardiology. Particular attention is given to the fundamentals of electrocardiography as well as a review of electrocardiographic findings in the various forms of heart disease. Fee, \$50.

NEUROLOGICAL AND PSYCHIATRIC DIAGNOSIS AND TREATMENT IN GENERAL PRACTICE

Two Weeks --- March 17 to 29, 1947

An intensive course in clinical neurology and psychopathology in which acute and chronic diseases of the central and peripheral nervous systems in adult patients are studied at the bedside and in the clinic. Emphasis is on diagnosis (including electro-encephalographic studies) and on such phases of therapy as can be carried ont in general practice. Cases of neurological disorders and borderline psychoneurotic and mental illnesses as well as psychosomatic problems are demonstrated. Fee. \$75. as psychosomatic problems are demonstrated. Fee, \$75.

CLINICAL PEDÍATRICS

Four Weeks - March 3 to 29, 1947

review of clinical pediatrics including ward rounds, clinical conferences, and case demonstrations in special clinics dealing with cardiology, allergy, endocrinology, chest diseases, and speech defects. Clinical lectures on various conditions are given by specialists in their fields. Recent developments, such as electroencephalography. chemotherapy, and Rh factors, are discussed. Fee, \$125.

DIABETES MELLITUS, -NEPHRITIS, AND HYPERTENSION

Five Days - March 24 to 28, 1947

The practical application of present knowledge concerning diabetes mellitus, hypertension, and nephritis. The value and interpretation of laboratory data are discussed. Symptomatology, diagnosis and treatment are stressed throughout the course. Fee, \$45.

For information about these and other courses, and for application, address

311 East 20th Street, New York 3, N.Y. The Director.

THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL

(The Pioneer Post-Graduate Medical Institution in America)

UROLOGY

A combined full time course in Urology covering an academic year (8 months). It comprises instruction in pharmacology; physiology; embryology; blochemistry; bacteriology and pathology; practical work in surgical anatomy and urological operative procedures on the cadaver; regional and general anesthesia (cadaver); office gynecology; proctological diagnosis; the use of the ophthalmoscope; physical diagnosis; roentgenological interpretation; electrocardiographic interpretation; dermatology and syphilology; neurology; physical therapy; continuous instruction in cysto-endoscopic diagnosis and operative instrumental manipulation; operative surgical clinics; demonstrations in the operative instrumental management of bladder tumors and other vesical lesions as well as endoscopic prostatic resection.

FOR THE GENERAL PRACTITIONER

Intensive full time instruction in those subjects which are Intensive full time instruction in those subjects which are of particular interest to the physician in general practice, consisting of clinics, lectures and demonstrations in the following departments—medicine, pediatrics, cardiology, arthritis, chest diseases, gastroenterology, diabetes, allergy, dermatology, neurology, minor surgery, clinical gynecology, proctology, peripheral vascular diseases, fractures. urology, otolaryngology, pathology, radiology. The class is expected to attend departmental and general conferences.

ROENTGENOLOGY

A comprehensive review of the physics and higher mathematics involved, film interpretation, all standard general roentgen diagnostic procedures, methods of application and doses of radiation therapy, both x-ray and radium, standard and special fluoroscopic procedures. A review of dermatological lesions and tumors susceptible to roentgen therapy is given, together with methods and dosage calculation of treatments. Special attention is given to the newer diagnostic methods associated with the employment of contrast media, such as bronchography with Lipiodoi, uterosalpingography, visualization of cardiac chambers, peri-renal insuffiation and myelography. Discussions covering roentgen departmental management are also included.

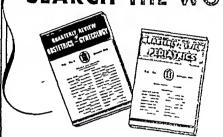
PHYSICAL MEDICINE

Didactic lectures and active clinical application of all present-day methods of physical medicine in internal medicine, general and traumatic surgery, gynecology, urology, dermatology, neurology and pediatrics. Special demonstrations in minor electrosurgery, electrodiagnosis, fever therapy, hydrotherapy including colonic therapy, light therapy.

FOR INFORMATION ADDRESS

MEDICAL EXECUTIVE OFFICER, 345 West 50th St., New York City 19

WORLD FAMOUS AUTHORITIES SEARCH THE WORLD'S MEDICAL LITERATURE



To Bring You the Latest Advances in your Specialty

In Obstetrics and Gynecology with

Quarterly Review of Obstetrics and Gynecology

In Pediatrics with Quarterly Review of Pediatrics

These authoritative journals are two of the noteworthy group of Quarterly Reviews published by the Washington Institute of Medicine Each is separately edited by a large board of outstanding specialists, who serve without remuneration as a contribution to medical progress. Each editorial board carefully selects and presents, in condensed, yet practical form, all significant advances in its own special field which are reported in the medical literature of the entire world. All journals are full-sized (6¾" x 10") with from 100 to 200 pages of text.

QUARTERLY REVIEW OF OBSTETRICS and GYNECOLOGY (First published, in 1936, b) the Wash ington Institute of Medicine, under the name, "Obstetrics — Gynecology Survey") contains the latest developments, diagnostic methods, and medical and surgical procedures in these fields, selected by a boatd of thirty obstetrical and gynecological authorities. This material is presented so clearly, with editorial commentary, that it may be applied safely and successfully in the reader's own practice. For ease in reading and reference, all material is classified under twenty four separate headings. Each issue is indexed by subject and author, and yearly cumulative indexes are included in each October issue. Published quarterly in January, April, July and October Subscription, \$9.00 a year Handsome 1-year binder, \$2.00

QUARTERLY REVIEW OF PEDIATRICS presents, in condensed form, all the important new material in every branch of Pediatrics Its editorial board of seventeen pediatric authorities do far more than merely abstract articles, they classify material under thirty-four separate headings, list review articles, provide accurate bibliographical data and supply authoritative critical or interpretative comment. The fournal s j'Bookshelf' department reports on new books of pediatric interest. The Quarterly Review of Pediatrics is, in many respects, the equivalent of a continuous seminar in rhis special field. Each issue is thoroughly indexed, and yearly cumulative indexes are included in each November issue. Published quarterly, in February, May, August and November. Subscription, \$9.00.2 year. Handsome 1-year binder, \$2.00.

OTHER QUARTERLY REVIEWS IN RELATED FIELDS

QUARTERLY REVIEW OF MEDICINE Presents all significant advances in internal medicine and allied specialries, including cardiology and gastroenterology, \$9 00 a year 1-year binder, \$2 00

QUARTERLY REVIEW OF SURGERY Provides a concise and authoritative picture of current progress, trends and opinions in all branches of Surgery, \$9.00 a year 1-year binder, \$2.00

GENERAL PRACTICE CLINICS The Special Journal for the General Practitioner For the specialist, its comprehensive coverage provides a valuable perspective on current developments in tourteen important fields of special practice. Now only \$5.00 a year (formerly \$9.00) Published quarterly 1-year binder, \$2.00

Published by

Institute of Medicine **Washington**



1720 M STREET, N.W. (WASHINGTON 6, D. C.

EDITORIAL BOARD OF QUARTERLY REVIEW DF OBSTETRICS AND SYNECOLDSY

Fied L. Adar, M.D.

Affed C. Beck, I'D.

L. A. Call rs, I'D.

Bayrid Corri, M.D.

W. Jird R. Cooler M.D.

W. Bayrid Corri, M.D.

W. Brand Dentember "D.

W. Brand Dentember "D.

L. A. Erris, I'D.

James R. Goodan, M.D.

E. C. Harbisha M.D.

Bernard J. Harley, I'D.

Don'W. Harris W.D.

D. Nelson Henrerson M.D.

C. B. Interfam M.D.

Freder A.C. Tinner I'D.

James P.M. Cord M.D.

W. am F. Mengert M.D.

Potent D. Rissey, M.D.

Frand A. I. Payre, M.D.

Loans C. Payre, M.D.

Edwin M. Putertson M.D.

Edwin M. Putertson M.D.

Edwin M. Putertson M.D.

Edwin M. Scheman M.D.

Herhert Thorn M.D.

Reference M.D.

North M.D.

Herhert Thorn M.D.

Herhert Thorn M.D.

Herhert Thorn M.D.

Herhert Thorn M.D.

Herter T. Frant M.D.

North M.D.

Tall M.D.

Tall

EDITORIAL BOARD OF QUARTERLY REVIEW DF PEDIATRICS

IRVING I NOLPAN M.D. Entra n.Ch. of Ch. of the Homotol Philosophia Pa

WASHINGTON INSTITUTE OF MEDICINE 1720 M Street, NW, Washington 6, D.C

Please enter my subscription for the following I enclose \$ herewith

Quarris Res ex of Obtain as and Grant Co.
Quarris Peoms of Polume
Quarris Peoms of Polume
Quarris Peoms of Surjers
Quarris Peoms of Surjers
Quarris Peoms of Surjers
Quarris Peoms of Optain (1987)
Quarris Peoms of Roman (1987)
Quarris Peoms of Roman (1987)
Quarris Peoms of Roman (1987) \$3.66 \$3.66 \$3.66 \$700 Quently Fer en of Deman \$2.001 nd 1-year B adm for each journal . . .



Homewood Sanitarium

In addition to the scientific approach to the patients' problems, Homewood stresses the advantage of a homelike environment for nervous and mild mental cases under the individual care of physicians and the thoroughly trained psychiatric staff. The above fine pictured buildings, surrounded by 75 acres of landscaped lawns, terraces and wooded hills, accommodate 140 patients. Occupational and recreational therapy to brighten the days and evenings assists in making the hours pass pleasantly and helpfully. Write for illustrated folder.

F. H. C. Baugh, M.D., Medical Supt. The Homewood Sanitarium of Guelph, Ontario, Limited

SANATORIUM PREVOST Inc.

CARTIERVILLE (Montreal)

Diseases of the Nervous System and mild Psychoneuroses. Convalescence. Intoxications (Alcohol and Narcotics). All pyretic treatments. Electric-shock therapy.

Physiotherapy.

STAFF

DR. JEAN SAUCIER

DR, ROMA AMYOT

Medical Director



AN ALLEY FACING THE RIVER



MAIN PAVILION

Beautiful location on the shores of Riviere Des Prairies, 20 minutes from the heart of the metropolis, in the midst of a 600,000 sq. ft. park. Three pavilions, equipped to provide rest, quietness and home atmosphere. Experienced Nurses.

4455 GOUIN BLVD. W. — MONTREAL

Telephone BYwater 2405

Booklet on request.

HIS MAJESTY'S COLONIAL MEDICAL SERVICE

Since the resumption of general recruitment for the Colonial Medical Service after the defeat of Germany, about half the vacancies have been filled, but candidates are still required to replace normal wastage and to provide staff for expansion. Vacancies occur most frequently in Tropical Africa and in Malaya. Candidates must be British subjects and possess a medical qualification registrable in the U.K. and must have been born on or after the 1st January, 1905. In addition to the permanent and pensionable appointments, however, special contract terms are available for men up to the age of 45 or for younger candidates who would prefer to serve in the Colonies for a term of years rather than for their whole career.

The normal salary scale is from £600 to between £1,000 and £1,150 or in Canadian currency, \$2,400 to between \$4,000 and \$4,600 approximately. There are large numbers of super-scale posts to which promotion is made on merit, and which carry higher salaries. The large majority of Colonial governments have agreed to allow credit for war service in fixing the point at which selected candidates will enter the salary scale. The intention of this concession is to meet the cases of candidates who, by reason of war service, enter the Colonial Service at a later age than is normal. All officers appointed to permanent posts in the Colonial Service between the outbreak of war and a post-war date to be fixed by the Secretary of State for the Colonies will be regarded as having entered the Service in a single group, and seniority as between them in an individual Colony will be reckoned by age. Government quarters, in most cases free of rent, and first class passages to and from the Colonies are provided, and an adequate pensions scheme is in force.

Medical officers are appointed in the first instance for general service. There are opportunities for field investigation and posts are filled from within the Service for work in special branches of medicine and surgery and in Public Health. Medical Research Departments exist in the larger Colonies. Specialist appointments are usually reserved for Officers holding higher appointments who have shown outstanding merit in a particular branch of medical practice. Opportunities to gain these qualifications will be made available whenever possible and selected candidates may be required to attend a course of instruction in tropical medicine and hygiene before proceeding overseas, and, if not, will normally be required to attend such a course during their first leave period. Vacancies will occur in greater numbers in future for women with experience in gynæcological and maternity work, school public health. and child welfare.

The various Government Medical Departments employ about 700 European Medical Officers, including some 30 women, and about 1,200 locally appointed Medical Officers. Depending upon the territory such diseases as malaria, yaws, leprosy, sleeping sickness, plague, yellow fever, cholera and other diseases associated with the tropics are encountered, in addition to the usual diseases experienced in any medical practice. An Officer in the Colonial Medical Service has special opportunities in the practise of his profession in preventive medicine; there are also opportunities for teaching and research. The medical and health services will be considerably expanded in order to fulfil the schemes for public health development already planned.

Application forms and particulars of terms and conditions of Service may be obtained from the Office of the High Commissioner for the United Kingdom, Earnschiffe, Ottawa. It would be of assistance if intending applicants would quote the reference number 626/34 in their replies.



Henri Varnier

From deep sorrow to a great triumph

WHILE he was a French military surgeon, Henri Varnier's mother died in childbirth, after he had vainly given her his own blood by transfusion.

From that day on he devoted his life to obstetrics. He x-rayed living pregnant animals until he knew he could safely x-ray pregnant women. He was the first man to obtain a Roentgenogram of the fetal head, hear term, with sufficient clarity to judge its size, position, degree of flexion and engagement. This was in 1899, only four years after Roentgen had discovered the x-ray.

Varnier died while he was still young, and a contributing cause to his early death was overwork.*

Men like these pioneered the science of x-ray—and yet in scarcely fifty years, their names and deeds have been for gotten.

Though it is small homage, we plan to recall their deeds on these pages; and to strive in our plants to perfect the scie they started.

Thus, in the future, as in the past, you may know that Ansco X-Ray Materials will always bring you sharp, clear radiographs of high diagnostic value.

Ansco of Canada Limited, 60 Front Street West, Toronto 1, Ontario.

*Henri Varnier, by George J. Engelman, M.D., American Gynecology, May, 1903.

Ansco

X-RAY FILMS AND CHEMICALS

Number I in a series



The hormone of the mother

> Progesterone is the hormone of the mother and is indispensable for normal reproduction and ge-tation. Administered as PROLUTON by injection it helps maintain pregnancy threatened by miscarriage due to insufficient maternal hormone.

PROLUTON

In the presence of a history of habitual abortion PROLUTON is frequently administered prophylactically as soon as the diagnosis of pregnancy is established. Four ont of five women so treated are carried safely to term. 1.2

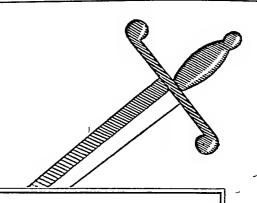
PRANONE (anhydrohydroxy-progesterone). the orally active form of corpus luteum hormone, may be substituted for PROLUTON where oral therapy will serve most conveniently.

PROLUTON (progesterone) Ampules of 1, 2.5, 10 mg.—Boxes of 3, 6 and 50, PR NONE (anhydrohydroxy-progesterone) Tablets 5, 10 mg.—Boxes of 20, 40, 100 and 250.

I. Mason, L. W. Ant. J. Obst. & Gance, 41 630, 1942, 2. Soule, S. D.: Ant. J. Obst. & Gance, 12 1009, 1941, 28301-34688 PROLITON AND PRANCE - REC. L. F. PAY. OFF.



Schering CORPORATION LIMITED
137 ST. PETER STREET MONTREAL, QUE.



"THE LIFE OF MAN IS AN EQUILIBRIUM CONSTANTLY MENACED BY MICROBES."

- Louis Pasteur

The use of 'Dettol' in concentrated form is not prohibited by toxic effects. A 2 per cent solution very rapidly kills haemolytic streptococci and *B.coli*, even in the presence of pus.

an antiseptic which was both efficient in dilution and safe at full strength, one which tremendously widened the margin between the clinically effective and the toxic dose, was bound, from the outset, to command the closest, liveliest interest. And so, ever since its first introduction, some ten years ago, to the British Medical profession, 'Dettol' has been submitted to the test of vast clinical experience. Its performance, recorded not only in scientific papers but in standard textbooks, today influences both opinion and practice throughout the British Empire.

A HIGHLY-EFFICIENT germicide, non-poisonous, stable, active in the presence of blood and pus, deodorant, pleasant in smell, non-staining to linen and the skin, 'Dettol' is clearly indicated for use in all those contingencies which call for unfailingly effective, safe and pleasant antisepsis.

'DETTOL' OBSTETRIC CREAM is a preparation of 30 per cent 'Dettol' in a suitable vehicle, the right concentration for immediate use in obstetrics. Applied to the patient's skin and to the gloves of the operator, it forms for more than two hours a dependable barrier against re-infection.

"Premaren

. . . at the menopause

Highly potent

Orally active **

Naturally occurring
Essentially safe
Water soluble
Well tolerated
Imparts a feeling
of well being

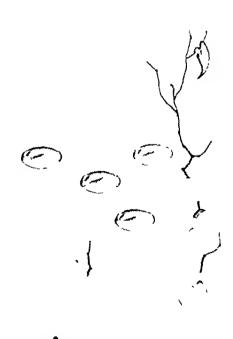
"... the steodying, beneficial effect of cantinuous arol theropy an menopousal symplams would seem to demand that this method of treatment be used in the future."** Oral therapy with "Premarin" ensures a steady daily intake which may be gradually reduced as the symptoms are cantralled and the patient's needs for aestrin decrease. It also saves time for bath potient and physician by obvioting the necessity of frequent injections.

**Gray, L. A.: J. Clin. Endacrinal. 3-92 (Feb.) 1943.

" Premarin"

canjugated oestrogenic substances (equine) supplied in twa strengths:

No. 866—1.25 mg. per tablet No. 867— .625 mg. per tablet Both strengths are supplied in battles of 20 and 100.





In Multiple Vitamin Deficiencies

"THERAVITE"

for Therapeutic Use

Massive dosage of nine different vitamin factors to treat acute deficiencies, such as those due to extensive gastro-intestinal lesions, prolonged dietary insufficiency or operative procedures.

No. 238 — Each capsule contains:	Thiamin Chloride	5 mg.
Vitamin A25,000 Int. Units	Riboflavin	5 mg.
Vitamin D	Niacinamide	30 mg.
Vitamin E (as alpha-tocopherol)10 mg.	Pyridoxine	l mg.
Ascorbic Acid100 mg.	Pantothenic Acid	3 mg.
Supplied in bottles of 30 and 100		

"SUPPLAVITE"

to Supplement the Diet

Prophylactic doses of six different vitamin factors for cases of milder deficiencies or increased needs due to adolescence, pregnancy, lactation or convalescence.

No. 950 (Liquid) — Each teaspoonful
contains:
Vitamin A
Vitamin D
Thiamin Chloride 1 mg.
Riboflavin 2 mg.
Niacinamide 10 mg.
Supplied in bottles of 2 and 8 ounces



AYERST, McKENNA & HARRISON LIMITED

Biological and Pharmaceutical Chemists • MONTREAL, CANADA



Bright on the horizon of Canoda's better
"Electrical Tomorrow" shines a brilliant
new star... Philips Industries Limited.
Backed by the worldwide Philips reseorch and manufacturing resources—
and with steadily expanding facilities in
Canodo—Philips Industries Limited brings

PHILIPS

LIGHTS THE WAY TO

BETTER SOCIUCIO

to Canadians many new discoveries in electronic engineering. Discoveries which will accelerate the wheels of industry and accentuate the joys of living. Look to "Philips House" today for the most advanced in X-Roy and Electrotheropy Equipment; Diamond Dies, Electronic Measuring Instruments, Magnetic Filters; Radio Camponents, Electronic Tubes . . . And look to Philips Industries Limited to pioneer important future developments in Rodio, Electronics and Electrical Devices to serve all Canada.



Entrance lobby of Philips House, new, larger headquarters of Philips Industries Limited, in Philips Square, Montreet



Modern is the keynote in Fhilips House. Above, the spacious offices, "functionely designed" for efficiency, pleasant working conditions.



Known throughout the world the form in Fritos name and emblem at his might and any over Montrea a Fritos Sainte

•

1

ONLY Sibby Baby Foods only are HOMOGENIZED



Homogenization speeds digestion of starches

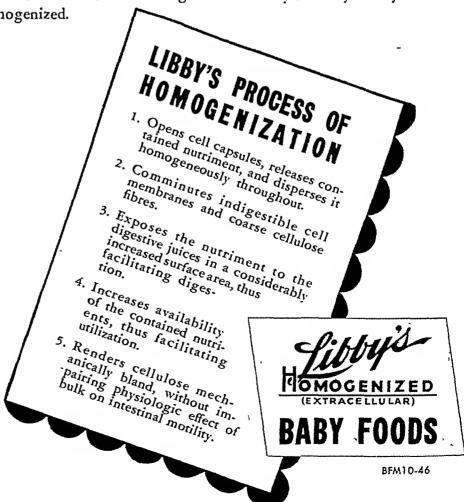
When strained baby foods were compared with Libby's strained and Homogenized baby foods, experiments showed that nearly all the starch in the strained vegetables was enclosed in intact vegetable cells, and from two to four hours were required for digestion of this starch. On the other hand, no intact cells were found in Libby's Homogenized vegetables. All of the starch was extracellular and digestion was complete within one hour. These results clearly indicate that Homogenization of baby foods renders these foods easily digestible, even by the delicate digestive apparatus of a young baby—they are well tolerated as early as the sixth week. It also enhances the nutritional yield of the foods because

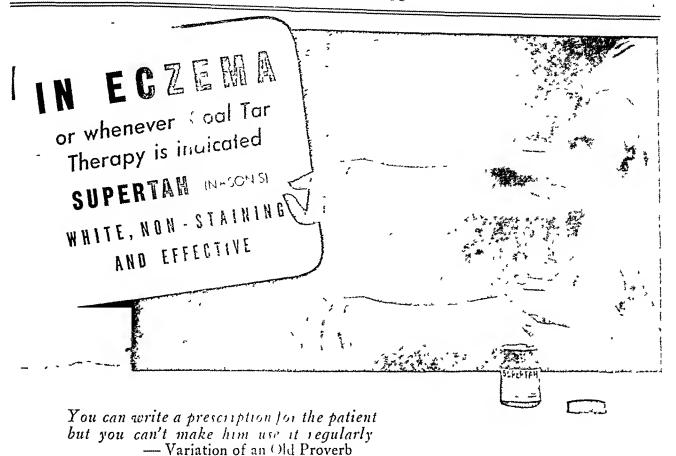
it increases the availability of the contained nutrient. Both these conclusions have been proved during clinical tests. These obvious nutritional advantages are true only of Libby's Baby Foods

because only Libby's are Homogenized.

WRITE FOR DR. KILLIAN'S REPORTS ON INFANT FEEDING

A series of bulletins by Dr. Killian summarizing and discussing clinical and laboratory studies on infant feeding are available to pediatricians and physicians. For copies, write to Libby's, Chatham, Ont.





Medical circles agree on the therapeutic value of crude black coal tar preparations for eczema and severe, oozing skin conditions. But many physicians hesitate to prescribe coal tar because the obnoxious qualities of the black tar preparations make the cooperation of the patient so uncertain.

For that reason, more and more doctors are prescribing SUPERTAH (Nason's), a white coal tar ointment. It "has proven as valuable as the black coal tar preparation", say Swartz & Reilly, (Diagnosis and Treatment of Skin Diseases, p. 66) but is free of the objectionable

qualities of black coal tar A contrist of squalities with those of the black tar explin why patients find SUPLRTAH pleasant to use.

- 1. SUPERTAH is WHITE, not black
- 2. Is hardly noticeable on the skin
- 3. Is easy to remove from the skin
- 4. Causes no stain, discoloration of skin
- 5. Does not discolor bedding or clothing
- 6. Is free of tarry odor
- 7. Does not irritate skin; non-pustulant
- Need not be removed before each application
- Can be left on skin indefinitely without fear of dermatitis

Today, with less time than ever for close patient supervision, is the day for you to give SUPERTAH a trial. Available in 2-07, jars (5% or 10% strength) at prescription pharmacies. Physician's sample sent on request.





SUPERTAH

(NASON'S)

TAILBY-NASON COMPANY
Kendo !! Square Station, EOSTON 42, MASS

RELIABLE PHARMACEUTICALS SINCE 1905



Only the Physician is qualified to diagnose impaired hearing

... and Only Zenith Emphasizes This Important Truth!

THERE'S more than one way to dispense hearing aids. But we think Zenith's way of encouraging the hard of hearing to consult their physicians before they buy, is the best way.

That's why this statement appears in advertising for the Zenith Radionic Hearing Aid:

"Consult your doctor to make sure that your hearing deficiency is the type that can be benefited by the use of a hearing aid."

First and foremost—this method keeps the physician in the hearing aid picture by relying upon his professional training, experience and skill.

Second—it enables Zenith to do away with pseudo-scientific "laymen in white coats" who increase the selling costs of hearing aids without increasing their quality or efficiency.

Exactly because Zenith does keep the diagnosis of impaired hearing in the physician's hands, we can sell a superior hearing aid direct ... at about one-fourth the price of comparable instruments. We sell it direct under a guarantee of complete satisfaction or money back.

This policy has enabled Zenith to bring a fine quality hearing aid within reach of all Canadians. Thousands now hear well for the first time! No small part of our success is due to the splendid cooperation of the members of the Canadian medical profession. For this we thank you—and pledge our continued effort to help you rehabilitate your hard of hearing patients.

THE NEW ZENITH RADIONIC HEARING AID

Only \$40 direct-by-mail. Complete, ready-to-wear with Neutral-Color Earphone and Cord.

THE NEW ZENITH BONE-CONDUCTION HEARING AID

For the very few whose physicians recommend this special type. Only \$50 direct-by-mail. Complete, ready-to-wear with Neutral-Color Bone-Conduction Receiver and Cord.

RADIONIC HEARING AID

BY THE MAKERS OF ZENITH RADIOS

ZENITH RADIO CORPORATION OF CANADA, Ltd.
Guaranty Trust Bidg., Dept. M-27
P. O. Box 30, Windsor, Ontario
Please send me free literature on the Zenith Hearing Aids.

Name

Address

City Province



MANY prediatricians feel that unless there is some other indication they would use evaporated milk in infant feeding Most of them feel that the safest Milk for infant feeding is skimmed or partly skimmed milk.

For years pædiatricians have requested a partly skimmed evaporated milk. "Farmer's Wife" concentrated milk is the response to these requests. It is half skimmed, concentrated, homogenized and sterilized. It is also Irradiated and has a high Vitamin "D" potency of 400 International Units per reconverted quart (half "Farmer's Wife" — half water).

Furthermore, "Farmer's Wife" Milk is so easy to digest that it is prescribed in such conditions as vomiting and regurgitation, poor appetite and failure to take feeding, diarrhæa, fat intolerance, allergy.

In a number of Canadian hospitals, "Farmer's Wife" Milk is used in the formula immediately an infant cannot be nursed by its mother, and with most satisfactory results.

The composition of "Farmer's Wife" Concentrated Milk is standardized and therefore uniform. Also it is always clean and sterile. In addition to the improved digestibility due to low fat content the superheating during evaporation and sterilization tends further to make it more digestible.



Although at present, owing to government regulations, "Farmer's Wife" Milk is not distributed in all parts of Canada, it is expected that as soon as restrictions are lifted, it will be available throughout the Dominion.

COW & GATE (CANADA) LIMITED

GANANOQUE, ONTARIO

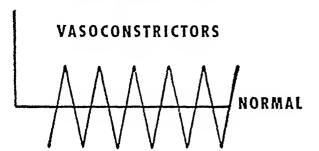
In treating Paranasal Infection

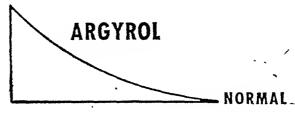
Avoid the Congestive Rebound

of Vasoconstrictors

Help restore normal function

with ARGYRO





This vicious circle of vasoconstriction and compensatory congestion with many vasoconstrictors does not lead to restoration of normal function in the nasal passages.

On the other hand, the cleansing, demulcent and bacteriostatic actions of ARGYROL aid the natural defense mechanism without disturbing the normal physiology of the mucous membranes.

The Three-Fold Action of ARGYROL:

In contact with the mucous membrane, ARGYROL possesses these unique advantages:

- 1. ARGYROL is decongestive, without irritation to the membrane and without ciliary injury.
- 2. ARGYROL is definetely bacteriostatic, yet is non-toxic to tissue.
- 3. ARGYROL cleanses, and stimulates secretion, thereby enhancing Nature's own first line of detense.

Three-Fold Approach to paranasal therapy:

- 1. The nasal meatus...by 20 per cent ARGYROL instillations through the nasolacrimal duct.
- 2. The nasal passages . . . with 10 per cent ARGYROL solution in drops.
- The nasal cavities . . . with 10 per cent ARGYROL by nasal tamponage.

RGYROL the Physiologic

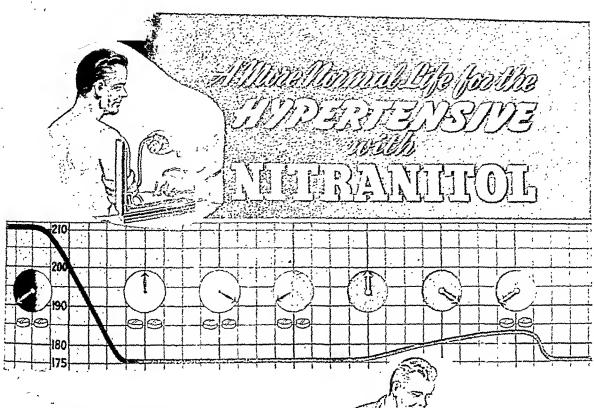
lear voti-infective with broad, sustained action Canadia₁

oledge ou. lard of hea

A. C. BARNES COMPANY LIMITED . STE. THÉRÈSE, QUEBEC

ARGYROL is a registered trade mark, the property of A. C. Barnes Company Limited





The steady, prolonged vasodilation afforded by Nitranitol makes it possible to maintain blood pressure at safe levels for normal daily activities.

The action of Nitranitol is

GRADUAL—avoiding rapid "ups and downs" in arterial pressure.

PROLONGED—each dose overlapping the effect of the one before.

SAFE—permitting indefinite, continuous therapy.

Nitranitol—containing ½ gr. mannitol hexanitrate in each scored tablet—is available for prescription in bottles of 100 and 1000.

TRITEANITOCT et a separated telegraph of De Will, S. Merrill Compare

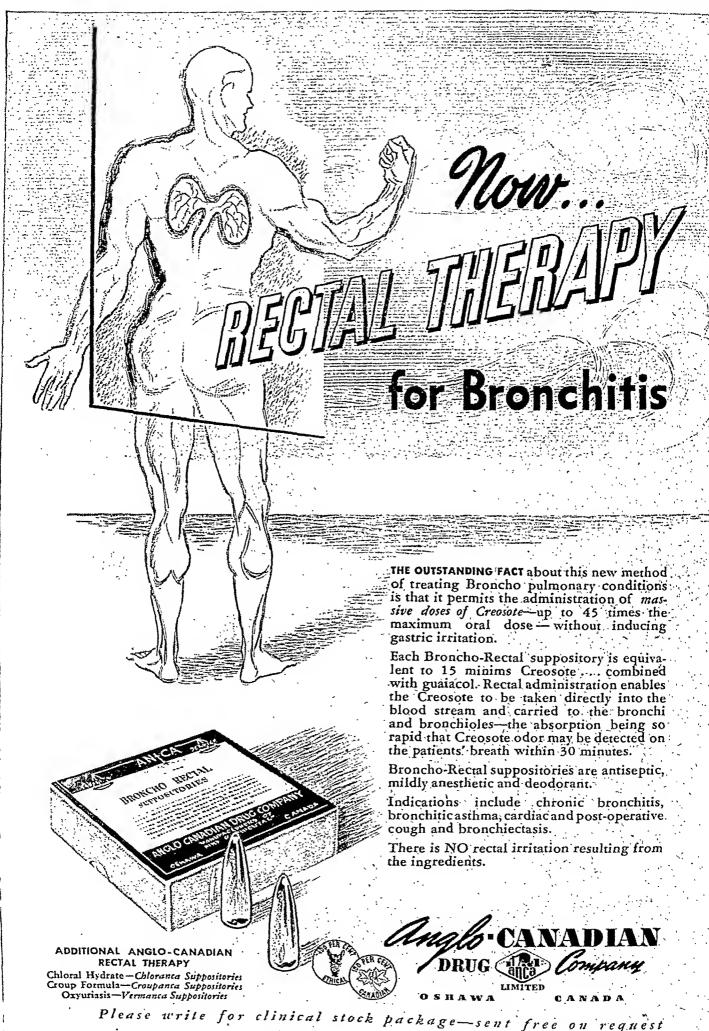
THE WM. S. MERRELL COMPANY CINCINNATI U.S.A.



NITRANITOL with PHENOBARBITAL

combines ¼ gr. phenobarbital with ½ gr. mannitol hexanitrate. Scored tablets in bottles of 100 and 1000.

> CANADIAN DEPOT 1705 ST. CLAIR AVE. W. TORONTO ONTARIO









A DELICIOUS ORANGE FLAVOURED RESTORATIVE VITAMIN FOOD SUPPLEMENT FOR ALL SEASONS

VIMALTOL presents special advantages to the physician requiring a product which incorporates important vitamins in a form entirely pleasant and acceptable to every patient.

"Vimaltol" is made from Malt Extract and orange juice concentrate, together with the Vitamins A, B₁, D, Riboflavin (B₂), Niacin, and the minerals Iron, Calcium, Phosphorus

"Vimiltol" is thus an important aid in the treatment of the many abnormal conditions resulting from the deficiency of one or more of the essential vitamins in the average everyday dietary.

The routine use of "Vimaltol" helps normal development of the growing organism and the maintenance of correct metabolism, while raising the general resistance against infection.

"Vimaltol" has a very wide application in general practice for patients of all ages - It can be prescribed with advantage at all seasons

VIMALTOL

The recommended duly dose for adults provides the following important food factors

2,000 I U Calerum Vitamin A 5 mgs Vitamin D 400 IU. Phosphorus 17.5 mgs Vitamin B_I (333 I U) I mg Protein 0 92 gm. Riboflavin (B2) Carbohydrates 1 mg. Niacin 10 mgs Fat 10 mgs Calories . 21-46 FACTS for doctors and dietitians on special diets in which the use of on easily prepared cereal of high nutritive value is indicated.

Is there an ideal cereal for infant feeding?

For over 50 years Cream of Wheat has been recommended as an excellent first solid food for babies. It provides important nutrients in a form easily digested by infants and small children. It is also useful in certain nutritional and digestive disorders.

IRON.* "5 Minute" Cream of Wheat is an excellent source of well-utilized Iron for infants. An average serving (2 level tbsps., dry weight—20 grams) provides 8.5 mg. of Iron—or 12 mg. per dry ounce.

Clinical tests prove this cereal, fed infants between 3 and 5 months old as the first soit solid food, is a satisfactory source of Ivon It is very valuable in cases of nutritional anemia (often found in infants from 4 to 14 months old). The Iron in "5 Minute" Cream of Wheat is as available as medicinal Iron (ferrous sulphate) and essentially as effective.

GALCIUM: PHOSPHORUS. *One ounce (dry weight) of "5 Minute" Cream of Wheat provides 143 mg. of Calcium and 160 mg of Phosphorous. Extensive tests show the Calcium and Phosphorous are utilized fully as well as the corresponding elements contained in milk. Another study has revealed that the ingestion of the cereal by infants slightly increased the serum calcium level.

EASY DIGESTIBILITY. Clinical tests prove that only 5 minutes' boiling is required to fully break down the stareh cells in

*For diets deficient in these elements

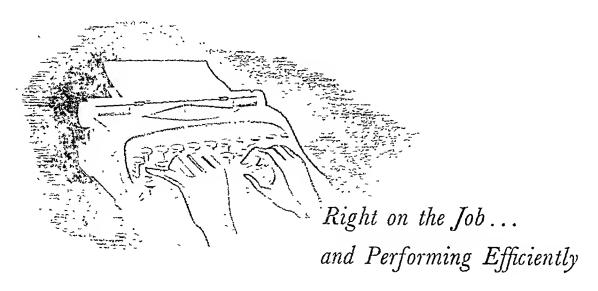


"5 Minute" Cream of Wheat. Longer cooking is not necessary, even for use in infant formulas or as a starting cercal.

Complete digestion of "5 Minute" Cream of Wheat was checked by microscopic examination of stools of small infants (3 weeks to 6 months). No raw starch granules were in the stools when this cereal (boiled only 5 minutes over open flame) was used as the one source of starch. Test included formulas and solid food.

special uses. "5 Minute" Cream of Wheat's high content of available Iron is useful in preventing nutritional anemia in infancy. In pylone spasm, thick formulas which use this cereal provide nourishment in a well-retained form. In diarrhea, the cereal's very low crude fiber content (1 part in 200) makes it possible to provide important nutrients without rough, irritating particles.

NOTE: For free sample packages of "5 Minute" Cream of Wheat (4-6 servings) write The Cream of Wheat Corporation, Winnipeg,



Neo-Synephrine minimizes the distressing nasal symptoms of common colds...permits patients to work more comfortably, sleep more restfully—even during the acute stages of coryza.

Neo-Synephrine

HYDROCHLORIDE

LAGI O + 6 - HYDROXY + B + NIETHYLAPINO + B + DYDROXY + ETHYLBENZENE HYDROXY + B+ D

For Nasal Decongestion

THER APEUTIC APPRAISAL: Quick-acting, long-lasting . . . nasal decongestion without appreciable compensatory recongestion; virtually free from cardiac and central nervous system stimulation; consistently effective upon repeated use; no appreciable interference with ciliary activity; isotonic to avoid irritation.

INDICATED for symptomatic relief in common cold, sinusitis, and nasal manifestations of allergy.



ADMINISTRATION may be by dropper, spray or tampon, using the 14 % in culinor in an emulsion in most cases the 1% in saline when a stronger of .tion is indicated. The 16 Se jells in tubes is convenient for patients to carry,

SUPPLIED as Mile and I in immedia saltsolution, and as life in onen in a bottle of 1 fl. oz.; Me jelle in fice. collaps ble tubes with applicator.

Trial Supply Upon Request

Full Stearns Com

of Canada, Ltd.

SYDNEY, AUSTRALIA . PLOUISING NEW TRALEND

5-3"B

Morro in the attack time to return

3 Ways to introduce The good sustrition of Tomatoes the good sustrition Diets into Infant Diets





As Early as 2 Weeks . . .

Aylmer Strained Tomato Juice may be fed for Vitamin C. 1 tsp. Aylmer Strained Tomato Juice should be diluted with 1 tbsp. boiled water. Amount is gradually increased until baby receives 2 oz. tomato juice in 2 oz. water daily.



As Early as 3½ Months . . .

Aylmer Strained Tomato Soup may be introduced. This should be well-diluted for first feedings, decrease dilution as baby grows older.



As Early as $4\frac{1}{2}$ —5 Months . . .

Aylmer Strained Tomatoes with Farina may be given diluted to souplike consistency at first. Particularly helpful way of giving tomatoes when child first feeds himself.

All Aylmer Strained Baby Foods are cooked after being sealed in sterilized tins to ensure purity . . . and to safequard vitamin and mineral retention.

Over 20 Varieties SOUPS, VEGETABLES, FRUITS, FRUIT CUSTARDS

Strained FOODS BABY

For Samples-Write Canadian Canners Ltd., Hamilton

EVERYONE SAYS:

"Aylmer Sure Knows its Tomatoes"



Canada's Future Citizens Deserve AYLMER Quality



to combat

the depression of

chronic organic disease Many patients with chronic organic disease—arthritis or asthma, for example—sink into a persistent depression characterized by discouragement, or even despair. Unless effectively combated, this depression may handicap management of the basic disorder and intensify its symptoms.

By restoring optimism and interest in useful living, Benzelrine Sulfate frequently helps to overcome prolonged depression accompanying chronic illness. Obviously, in such cases, careful observation of the patient is desirable; and the physician will distinguish between the casual case of low spirits and a true mental depression.

benzedrine sulfate (racemic amphetamine sulfate, S.K.F.) Tablets

Smith, Kline & French Inter-American Corporation, Philadelphia and Montreal Canadian Distributors: The Leeming Miles Co., Ltd., Montreal



"As baby to doctor, we are happy indeed that you insist upon a laxative for infants and children which must meet certain qualifications... believe us!"

Most doctors today do agree on the fundamental requirements of modern baby care. As an instance, medical surveys show that physicians insist that a children's laxative should be: mild ... effective ... pleasant-tasting ... not griping ... not harsh or upsetting.

Castoria, the laxative made especially for children, has every one of those desired qualities . . . due largely to the valuable senna ingredient it contains. Because it is pleasant-tasting and mild, the child takes it without being forced . . . its liquid form enables the physician to regulate the dosage accurately.

Senna, while especially suitable when a laxative is indicated for infants and children, has one disadvantage in its natural state. Despite its mildness and the many pharmacological advantages so well known to the profession, it has the tendency to produce griping.

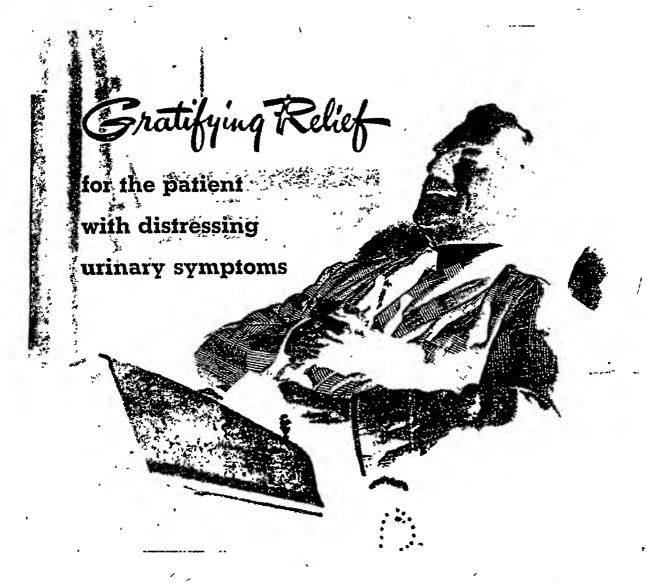
Disadvantages of Senna Overcome

Studies by the makers of Castoria have established that this is caused by resins in the senna leaf. In Castoria a special process has been developed for extracting the active principles of senna leaves without the resinous materials . . . and without impairing the laxative efficiency. The active laxative ingredient of Castoria is this specially treated senna, from which the griping resins have been eliminated.



different tests and inspections have been developed to insure the quality, purity, uniformity, and fast disintegration of genuine "Aspirin" tablets.

"ASPIRIN"



PYRIDIUM, administered orally in a dosage of 2 tablets *t.i.d.*, will promptly relieve distressing urinary symptoms in a large percentage of ambulant patients, thereby permitting them to pursue normal activities without undue disturbance.

The prompt symptomatic relief provided by Pyridium is extremely gratifying to such patients suffering from the distressing symptoms of painful, urgent, and frequent urination, tenesmus, and irritation of the urogenital mucosa.

Pyridium produces a definite analyssic effect on the urogenital mucosa following oral administration. This action is entirely local, and is not associated with, or due to, systemic sedation or narcotic action. Literature on Request.

PYRIDIUM

(Phenylazo-alpha-alpha-diamino-pyridine mono-hydrochloride)

MERCK & CO. LIMITED

Manufacturing Chemists

MONTREAL, TORONTO, VALLEYFIELD

PYRIDIUM is the Canadian registered trade mark of the product manufactured by the Pyridium Corporation.

HYPERDURYS INJECTION SOLUTIONS



FOR PROLONGED ACTION

The Hyperduric series of injection solutions were recently introduced by The Allen and Hanburys Company Limited. This series is the result of a search for effective methods of prolonging the pharmacological effect of morphine and other bases. Clinical trials have demonstrated that for a given dose of morphine the period of narcosis can be considerably extended if the base is administered in the form of mucate instead of the usual salts such as tartrate or sulphate. This prolongation of effect is also obtained with the mucic acid compounds of other active bases such as epinephrine.

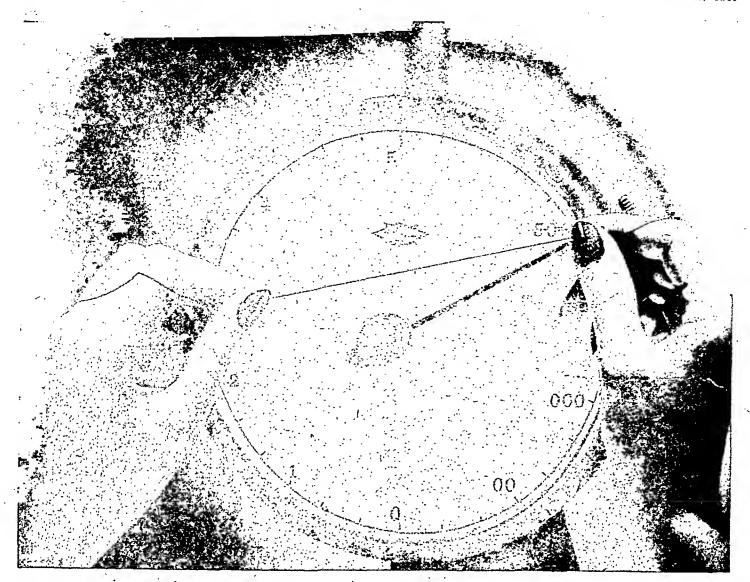
Hyperduric M.H.E.
Morphine, gr. 1/80, epinephrine, gr. 1/160, (as mucates) per c.c. Produces amnesia and narcosis for about 8 hours, without fall of blood-pressure.

Hyperduric EPRIEPHRINE
1 in 1000 (as mucate). Gives
relief for 8 to 10 hours in bronchial asthma.

Hyperduric MORPHINE
Morphine, gr. 1/2 (as mucate)
per c.c. Relieves pain for 8
to 12 hours.

Boxes of 12 ampoules of 1.1 c.c.

THE ALLEN AND HANBURYS COMPANY LIMITED



D&G Fine Gauge Catgut...

Minimum diameter-high tensile strength

D&G FINE GAUGE CATGUT provides a strand of minimum diameter, high tensile strength and prolonged retention. Its exceptional strength, flexibility, gradual absorption rate and virtual absence of cellular reaction offer numerous advantages in the approximation of delicate or membranous tissues, particularly those of the gastro-intestinal tract. Experimental and clinical observations by eminent surgical authorities demonstrate that D&G Fine Gauge Catgut (Size 5-0 and 4-0) is the suture of choice for the uniform healing of delicate tissues.





"This One Thing We Do"

D & G sutures are obtainable through responsible dealers everywhere

Jour Reasons For prescribing

FERROCHLOR

with Vitamin B₁ E.B.S.

In Secondary Anaemia

In Ferrochlor with B₁, the iron is present in the readily absorbed ferrous state, rather than the biologically incompatible ferric form.

In Ferrochlor with B₁, the unpleasant taste of ferrous chloride is successfully masked, thus removing one hindrance to having patients complete a prescribed course of treatment.

In Ferrochlor with B₁, the use of a soluble iron salt obviates the need for using up... to dissolve the iron... the precious acid of the achlorhydric stomach, typical of many anaemias.

In Ferrochlor with B₁, the addition of thiamin chloride ensures that there will be no slowing down of iron absorption through poor intestinal tonus. Moreover, general muscular tone is so improved that the patient feels better—a big help in successful treatment.



525 Logan Avenue Toronto 6

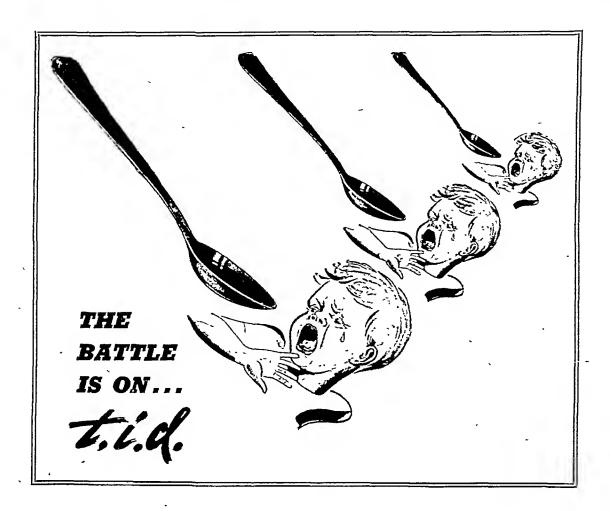
A WHOLLY CANADIAN COMPANY ESTABLISHED 1879



Figure 1. P. 1. Because With more Election of Election of and forces and follows, and Ferrical Destroy, and Ferrical Destroy, and entire Election of Vitamin Bl. Election of Applied in Ferrical 100, Contant 1100.

When prescribing Ferrochlor in any of the above mentioned forms, always meet the identifying letters "E.B.S." following the word Ferrochlor—

R Ferrochlor B₁ E.B.S. Sig. — as directed



A disrupted household and a harassed family usually attend "medicine time" of the acutely ill youngster. No such problem exists when treating acute tonsillitis with Laryngobis. *One suppository daily* is all that is needed for simple yet effective therapy.

Laryngobis is the bismuth salt of heptadiene-carboxylic acid in cocoa butter. Available for adults or children in boxes of 2 or 12 suppositories.

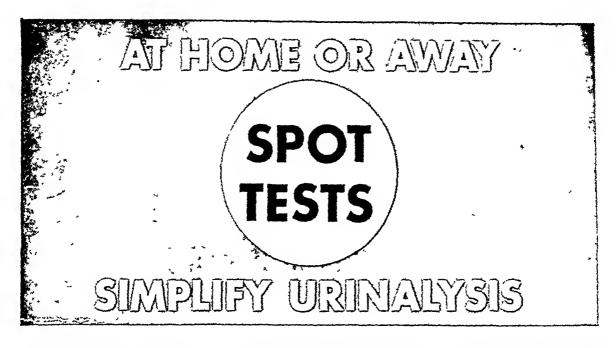
Observe dosage recommendations for age groups.

LARYNGOBIS SUPPOSITORIES



TORONTO

MONTREAL



NO TEST TUBES . NO MEASURING . NO BOILING

Diabetics welcome "Spot Tests" (ready to use dry reagents), because of the ease and simplicity in using. No test tubes, no boiling, no measuring; just a little powder, a little urine—color reaction occurs at once if sugar or acctone is present.

Galatest

FOR DETECTION OF SUGAR IN THE URINE

Acetone Test (DENCO)

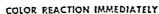
FOR DETECTION OF ACETONE IN THE URINE

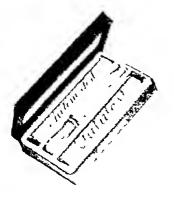
THE SAME SIMPLE TECHNIQUE FOR BOTH

I. A LITTLE POWDER



2. A LITTLE UPINE





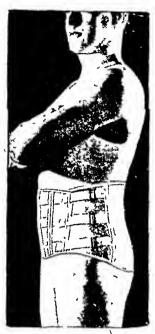
A carrying case containing one vial of Acetone Test (Derico) and one vial of Galatest is now available. This is very convenient for the medical bag or for the diabetic patient. The case also contains a medicine dropper and a Galatest color chart. This lands but or retils of Acetone Test (Derico) and Galatest are obtainable at all pre-cription plurinacies and surgical supply houses.

Accepted for advertising in the Jearnal of the A.M. L.

WRITE FOR DESCRIPTIVE LITERATURE

SO AT SAME OF THE PROPERTY OF SOMEWAY SO AT SAME OF THE SOUTH OF THE S

Have You Patients WITH ANY OF THESE 33 CONDITIONS?



Spencer Abdominal Supporting Belt designed especially for this man Grips polvis firmly, effectively coordinates abdominal and back support

Each Spencer Support is individually designed, cut and made after a description of the patient's body and posture has been recorded-and many measurements have been taken. This assures the doctor that the support will be correct from standpoint of body mechanics; that it will fit exactly, be perfectly comfortable.

For a dealer in Spencer Supports look in telephone book for "Spencer corsetiere" or write direct to us.

Fractured Vertebrae Spondylolisthesis Spondylarthritis Kyphosis Lordosis Scoliosis Osteoporosis Protruding Disc Visceroptosis or Nephroptosis with Symptoms Hernia, if inoperable or when operation is to be delayed Antepartum-Postpartum Needs Obesity Postural Syndrome **Breast Conditions** such as . . . Ptosed Breasts Mastitis Prenatal Nodules Nursing Prolapsed and Atrophic Breasts Stasis in Breast Tissues Following Mastectomy Hysterectomy Nephropexy Nephrectomy Appendectomy Cholecystectomy

CER INDIVIDUALLY

Colostomy

Herniotomy

Spinal Surgery

Cesarean Section

For Abdomen, Back and Breasts

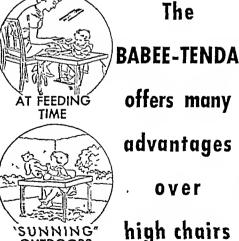
MAY WE SEND YOU BOOKLET? SPENCER SUPPORTS (CANADA) LIMITED Rock Island, P.Q. In U.S.A: Spencer, Incorporated, New Haven, Conn. In England: Spencer (Banbury) Ltd., Banbury, Oxon. Please send me booklet, "How Spencer Supports Ald the Doctor's Treatment."

The BABEE-TENDA Safety Chair is the SAFEST place, or

Cannot be pulled or tipped over 'a cause SERIOUS or FATAL accidents

Many preventable accidents happen to Babies! Falling high chairs have been the cause of many accidents, some fatal and others so serious as to cause permanent injury. The BABEE-TENDA Safety Chair protects Baby. It is low, only 22" high by 25" square and can't be pulled or pushed over. It has a Safety Halter Strap which positively prevents Baby from climbing out. The BABEE-TENDA is a finely finished piece of furniture that will look good in any room — it is sturdily constructed to give years of service. It is easy to handle, can be rolled from room to room and closed compactly for traveling. Later, after Baby outgrows the seat, it can be converted into a sturdy play table. Thousands of Doctors, including Baby Specialists, recommend BABEE-TENDA Safety Chairs to their patients because it is far safer than old-fashioned high chairs.

Copyright 1945 by The Babee-Tenda Corp. of Canada, Ltd.



OUTDOORS







Sold only direct to you through authorized agents. Write for free instructive folders and name of nearest agent-

THE BABEE-TENDA CORPORATION OF CANADA, LIMITED **347 Bay Street** Dept. CM Toronto 1, Ontario

"COURAGE AND DEVOTION BEYOND THE CALL OF DUTY"

Through the cooperation of Mead Johnson & Company, \$34,000 in War Bonds are being offered to physician-artists (both in civilian and in military service) for art works best illustrating the above title, as applied to physicians in war and in peace.

This contest is open to members of the American Physicians' Art Association and will be judged June 9-13, 1947, at the Atlantic City Session of the American Medical Association. For full details, with Dr. F. H. Redewill, Secretary, Flood Building, San Francisco, Cal., or hnson & Co., Evansville 21, Indiana.

WYANOIDS FOR HEMORRHOIDS

DESIRABLE ASSISTANTS

for your institution

can be secured through

A CLASSIFIED ADVERTISEMENT

in the JOURNAL

Is Medication Called For in the Correction of Constipation?

New investigation emphasizes dietary requirements in treatment of physiologic constitution

N a recent article published in the American Journal of Digestive Diseases* the causes of constipation were reviewed, and a simple dietary procedure recommended for patients lacking in adequate cellulosic residues.

Doetors were reminded that patients suffering from constipation as a rule indulge in self-treatment, and it is therefore important to establish and correct the physiology in each patient over a 24-hour period.

PROCEDURE RECOMMENDED

Outline a dict in keeping with basal requirements, providing the essentials needed for residue and nutriment.

Diets prepared by investigators called for a wheat bran—such as Kellogg's All-Bran—for the following reasons:

- 1. Cellulose content. Wheat bran supplies a resistant form of cellulosic material necessary for normal functioning of the alimentary tract
- 2. Laxative properties. Wheat born operates to assist the regularity of bowel movement by action on the contents of the colon, miller than on the colon itself.

CONCLUSION

If this simple procedure does not correct constipution, particularly in individuals where a substantial amount of cellulose is lacking in the diet—then medication is called for.

*Management of Chronic Constipations by Michael H. Streicher, M.D.

The Kellogy Company, makers of Kellogy's All-Bran, will be pleased to send you a reprint of the article from which this report has been summarized. Please use the coupon.

PLEASE SEND me a reprint of Dr. article as published in the American Digestive Diseases.	Streicher's Journal of

Name.	
Address	

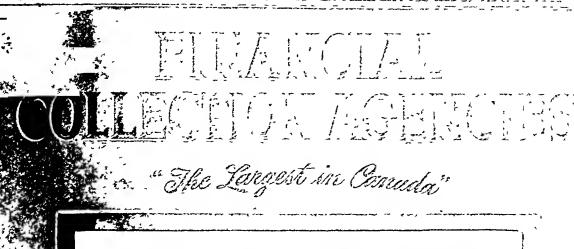
Mail to Kellogy Company, London, Onlarie, Canada



are the registered trade marks which distinguish the product of Coca Cola I rd

COCA COLA LTD.





Established on a firm foundation of over twenty years' wide practice and experience, FINANCIAL COLLECTION AGENCIES offer a Complete Collection service for DOCTORS.

HEAD OFFICE

8th Ficor, Federal Bldg.

YORONTO

MONTREAL . BIN LTON : WINNIPEG . QUEBEC CITY - SAINT JOYNING.

Equivalent in Vitamin D to B. P. Cod Liver Oil

Wampole's Extract of Cod Liver contains the same number of vitamin D units as British Pharmacopæia standard cod liver oil.

There is no taste of the nauseous oil. It does not cause eructations nor digestive disturbances. Children take it without protest.

Physicians can depend upon Wampole's Extract of Cod Liver in all cases where vitamin D therapy is indicated.

HENRY K. WAMPOLE & CO. LTD.

Manufacturing Pharmacists

PERTH

ONTARIO

CANADA



Crown Brand and Lily White Corn Syrups are well known to the medical profession as a thoroughly safe and satisfactory carbohydrate for use as a milk modifier in the bottle feeding of infants.

These pure corn syrups can be readily digested and do not irritate the delicate intestinal tract of the infant.

Either may be used as an adjunct to any milk formulæ.

Crown Brand and Lily White Corn Syrups are produced under the most exacting hygienic conditions by the oldest and most experienced refiners of corn syrups in Canada, an assurance of their absolute purity

"CROWN BRAND" and "LILY WHITE" CORN SYRUPS

Manufactured by

THE CANADA STARCH COMPANY Limited
Montreal and Toronto

For Doctors Only

A convenient pocket calculator, with varied infant feeding formulæ employing these two famous corn syrups . . . a scientific treatise in book form for infant feeding . . . and infant formula pads, are available on request, also an interesting booklet on prenatal care. Kindly clip the coupon and this material will be mailed to you immediately.

	THE CANADA STARCH CO. Limited
	Montreal
Please	send me
☐ FE	EDING CALCULATOR.
Be	ok "CORN SYRUPS FOR INFANT FEEDING."
	FANT FORMULA PADS.
_	
1 1 15 6	SUPER TYPECTANT MOTHER P
	ok "THE EXPECTANT MOTHER."
	ok "THE EXPECTANT MOTHER."
	ok "DEXTROSOL."
□Во	ok "DEXTROSOL."
□Во	ok "DEXTROSOL."

for CO₂ absorption
in anaesthesia
in oxygen therapy

SODASORB

T M REG CANADA

Dependable, economical, and made for the safety and comfort of the patient, SODASORB is a recognized leader. Non-heating, non-caking, non-dusting, and non-deliquescent, SODASORB is available in two moisture grades and three mesh sizes. For those who prefer, there is Indicator SODASORB, with the ethyl violet indicator to mark the limit of absorptive efficiency.

SODASORB

. a medical standard

DEWEY AND ALMY CHEMICAL COMPANY OF CANADA, LTD.
MONTREAL 32, P.Q.

TAXOL

FOR .
CONSTIPATION
NON HABIT FORMING

CAROVIT

Provitamin A and Chlorophyll tablets

ANAEMIAS, NERVOUS FATIGUE, NIGHT BLINDNESS

CONTINENTAL LABORATORIES LONDON - ENGLAND

J. EDDÉ Ltd., New Birks Bldg., MONTREAL
GENERAL AGENTS FOR CANADA

Samples on request

HEPAROS

A HIGHLY CONCENTRATED

LIVER EXTRACT

WITH

AMINO ACIDS

FOR

EFFICIENT HEMATOPOIESIS

Box of 10 Ampoules for oral use only.

Directions: One Ampoule every day or every other day

MADE BY THE

PIONEERS

IN

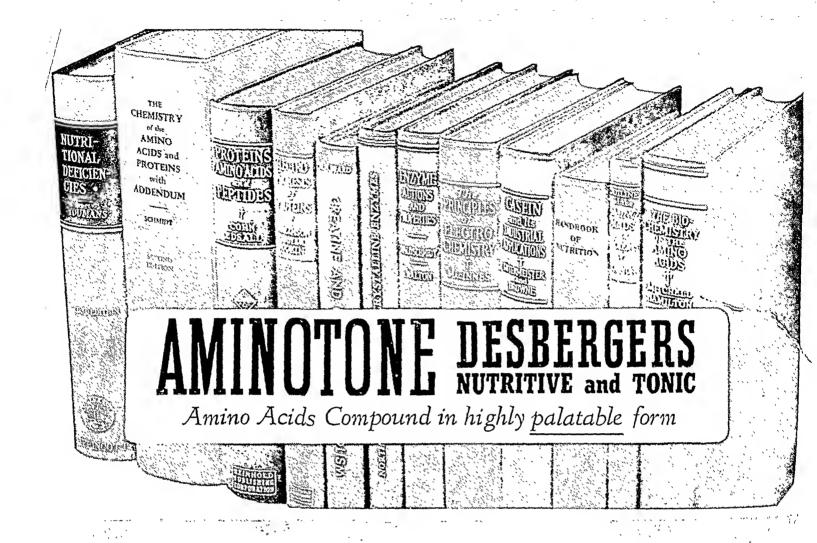
RESEARCH AND MANUFACTURE

OF

AMINO AGIDS

IN

CANADA



Each 100 c.c. contains:

AMINO ACIDS (with Tryptophane	e) 5	gm.
Thiamin HCI (Vit. B1)	18	mgm.
Riboflavin (Vit. B ₂)	7	mgm.
Sodium Glycerophosphate 4		gm.
Potassium Glycerophosphate		gm.
		gm.
Maltose, Dextrine and Dextrose		
Alcohol, by volume 19%		

INDICATIONS:

FORMULA AND DIRECTIONS:

General Debility, Nervous Exhaustion, Malnutrition, Convalescence

DOSE:

One dessertspoonful three or four times per day

Bottles of 12 ounces

BARALYME

83

B ARALYME is a new carbon dioxide absorbent especially developed by modern research for the medical profession. It is a combination of materials processed into pellet form, specifically for the efficient absorption of carbon dioxide from closed rebreathing systems.

It exhibits many advantages which have never been available in anesthesia, oxygen therapy, or basal metabolism.

Baralyme is non-caustic . . . It is uniform in absorption . . . It has no intermittent periods of exhaustion . . . It is efficient for a greater number of hours . . . It generates less heat in the canister . . . Its pellet shape minimizes dusting . . . It offers very little resistance to breathing . . . It contains no inert binders . . . It is not hygroscopic . . . It will remain materially unchanged in storage.

Distributed in Canada By

THE COMPANIES

TORONTO

WINNIPEG

CALGARY

VANCOUVER

CLASSIFIED ADVERTISEMENTS

in the

JOURNAL BRING RESULTS

WY-LIOUS FOR HEMORRHOIDS University of Toronto SCHOOL of HYGIENE



Diploma in Public Health

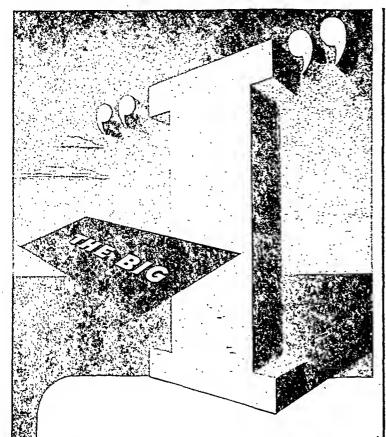
The second term of the present session will commence on

January 27, 1947

For information regarding this course and the

DIPLOMA IN INDUSTRIAL HYGIENE

write, The Director, School of Hygiene, University of Toronto, Toronto, Ontario.



The chemical symbol "I" represents Iodine, one of the most useful agents in the fight against disease.

Discovered as an element in 1811, its antiseptic properties were revealed through the work of Davaine in 1873. Since that time Iodine has established its position as an antiseptic of choice.

The valuable contribution of Iodine, however, is not limited to the field of antiseptics. Iodine and its salts have many important uses in the PREVENTION, DIAGNOSIS AND TREAT-MENT OF DISEASE.

Its necessity in the prevention of Goiter and its usefulness in the treatment of respiratory conditions are important chapters in its service record.

Moreover, Iodine is practically indispensable in certain techniques for diagnosis. Its value as a radio-opaque substance, for instance, is utilized for contrast X-ray visualization.

IODINE EDUCATIONAL BUREAU, INC. 120 Broadway, New York 5, N. Y.



OF SERVICE TO MEDICINE
FOR PREVENTION - DIAGNOSIS - THERAPY

__1

Dº COLLECTEM



No — you simply can't bring back those "rare old, fair old golden days that are gone beyond recall," Doctor. But — you certainly CAN, right Now, prevent your accounts from growing old and "doubtful"—and finally also "Gone Beyond Recall!"

THE MEDICAL AUDIT ASSOCIATION
44 Victoria Street, Toronto 1

MAIL US YOUR LIST TO-DAY!

IS THERE AN ARTHRITIS-ECZEMA-SYNDROME?

Both are claimed to be allergic. Both suggest mineral deficiency and impaired elimination. Clinically, each is symptomatically improved by the oral use of

LYXANTHINE ASTIER

which combines the therapeutic actions of iodine, calcium, sulphur, and lysidin bitartrate—a potent eliminator of endogenous toxic waste.

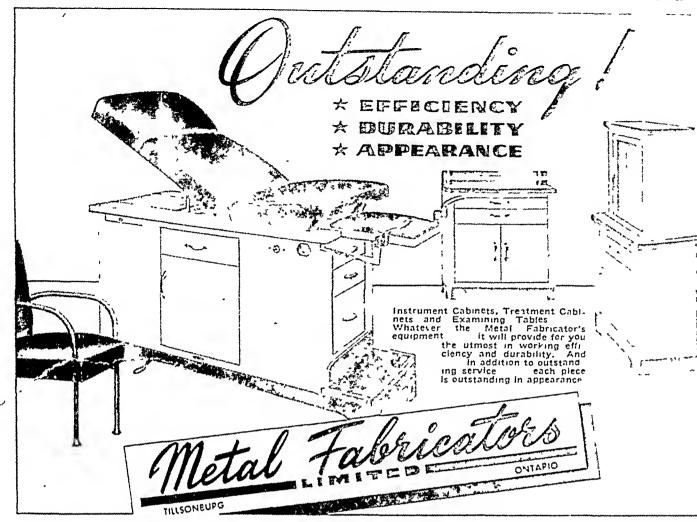
Write for information

L-1

Canadian Distributors

ROUGIER FRERES

350 Le Moyne Street, Montreal



Guard The Convalescent!

Use ANGIER'S to overcome the enervating after effects of-

INFLUENZA - GRIPPE BRONCHITIS - PNEUMONIA

The soothing, inflammation-allaying properties of Angier's Emulsion, and its general tonic effects, especially commend its use in convalescence from acute respiratory affections.

ANGIER'S will clear up catarrhal conditions, whether of the respiratory or intestinal tracts. It will restore tone to the digestive functions and enable patients to derive the full benefit from any prescribed diet. A practical medicine for children and elderly people.

ANGIER'S EMULSION is safe—containing no drugs, no sugar, no alcohol—it is palatable—it is miscible in hot or cold liquids.

Canadian Distributors:

On prescription in 6 and 12 ounce sizes.

The Wingate Chemical Co., Ltd. 378 St. Paul St. West - Montreal, P.Q., Canada

Announcing new .

"MEDICHROME" Series MR

Trade Mark Regd, U.S. Pat. Off.

HEMATOLOGY...

Following is a partial listing of the 122 2×2" (35 mm.) Kodachrome Photomicrographs on the normal and pathological histology of the blood, made with the cooperation of DR. NATHAN ROSENTHAL, Mt. Sinai Hospital, New York City.

PARTIAL LISTING

- MR/1. Acute post-hemorrhagic anemia Bl.
- MR/2. Acute post-hemorrhagic anemia B.M.
- MR/3. Hypochromic anemia (achylic) Bl.
- MR/4. Hypochromic anemia (achylic) B.M.
- MR/5. Hypochromic anemia (achylic) B.M. high power.
- MR/6. Pernicious anemia Bl.
- MR/7. Pernicious anemia B.M.
- MR/8. Reticulocytosis after liver extract Bl.
- MR/9. Congenital hemolytic spherocytic anemia Bl.
- MR/10. Congenital hemolytic spherocytic anemia B.M.
- MR/11. Congenital hemolytic spherocytic anemia Bl. reticulocytes.
- MR/12. Acquired hemolytic macrocytic anemia Bl.

JUST OUT!

New 32 page booklet on Blood Testing Instruments. Write for your free copy, 223R4/CMJ.

- MR/13. Acquired hemolytic macrocytic anemia B.M.
- MR/14. Acquired hemolytic macrocytic anemia Bl. reticulocytes.
- MR/15. Congenital aregenerative anemia (recovering) Bl.
- MR/16. Congenital aregenerative anemia (recovering) B.M.
- MR/17. Congenital aregenerative anemia (recovering) B.M. high power.
- MR/18. Aplastic anemia Bl.
- MR/19. Aplastic anemia B.M. (hyperplastic).
- MR/20. Aplastic anemia B.M. (aplastic).
- MR/21. Osteosclerotic anemia Bl.
- MR/22. Osteosclerotic anemia B.M.
- MR/23. Cooley's anemia (Mediterranean) Bl.
- MR/24. Cooley's anemia (Mediterranean) B.M.
- MR/25. Sickle cell anemia Bl.
- MR/26. Erythroblastosis fetalis Bl.
- MR/27. Erythroblastosis fetalis B.M.
- MR/28. Erythroblastosis fetalis Bl. reticulocytes.
- MR/29. Eosinophilia and leukemia in allergic dermatitis
- MR/30. Thrombocytopenia—thrombocytopenic purpura

ETC.

NOTE: Bl.-Blood

B.M.—Bone Marrow

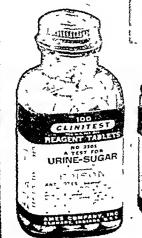
Write for complete listing MR/CMJ.

CLAY-ADAMS CO INC. A4 EAST 23rd STREET, NEW YORK 10, N. Y. ADAMS

Available through regular drug and medical supply channels

Literature on request





VRINE-SUGA

Sole Canadian Distributor:

FRED J. WHITLOW & CO. LIMITED
"S" Building
MALTON, ONT.

COMPANION PRODUCTS

For Urine Analysis

ALBUMINTEST

For Qualitative Detection of Albumin

Albumintest meets the need for a simple reliable test. The active ingredients for this molybdate test are compressed into a tablet which quickly dissolves in water to provide the reagent. It is non-poisonous, non-corrosive, and does not require heat. Tests may be made quickly by either turbidity or contact ring technics. Adaptable to all requirements of the laboratory. Easily carried by physicians, laboratory technicians, and public health workers. In bottles of 36 and 100 tablets

CLINITEST

For Qualitative Detection of Sugar

Clinitest represents the culmination of successive improvements on the basic copper reduction tests. The reagent is a tablet which is simply dropped into a measured amount of diluted urine. Heat is self-generated within the test tube. Equally adaptable to hospital routine, physician's laboratory or diabetic patient. In special Tenite plastic pocket-size sets with equipment and tablets for 36 tests, refill packages containing 36 tablets, complete laboratory outfits, bottles of 100 and 250 tablets for laboratory or hospital use

AMES COMPANY, INC.



A "natural" aid in treating Constipation

In dietary treatment of constipation, Old York Cereal has proven of genuine value. Old York contains bran, flax, wheat and corn, scientifically blended into a delicious non-heating, non-fattening cereal which provides bulk, roughage and natural oil for lubricating the digestive tract.

This laxative food gently and naturally rids the intestines of injurious waste.

Delicious as a satisfying hot porridge, or made into date bread or muffins, according to directions on the package. Preferred by many users in its natural nucooked state.

Introductory Offer to Physicians

A generous sample of OLD YORK will gladly be sent to physicians wishing to test its efficacy.

DURUM CEREALS LTD. 858 Dupont St., Toronto



The Canadian Medical Protective Association

PRESIDENT - JOHN F. ARGUE, M.D.

A mutual medical defence union founded in 1961, Incorporated by act of Dominion Parliament, February, 1912, and affiliated with the Canadian Medical Association, 1924.

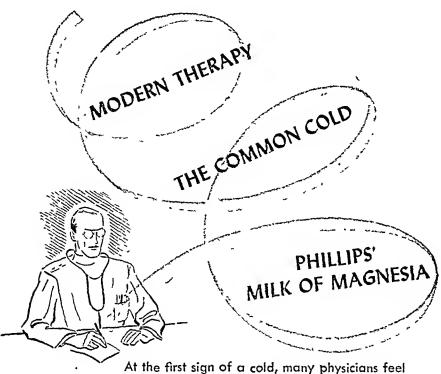
OBJECTS: To assist in the defence of its members in cases of alleged malpractice, and to encourage honourable practice in the daily work of the medical profession.

Subject to our by-laws, assistance is given by the payment of the taxable costs of actions together with reasonable counsel and witness fees in cases undertaken by our Association, as well as damages if awarded. All members in good standing of the Canadian and various Provincial Medical Associations may be enrolled upon signing the application form and paying the annual fee. All other regularly qualified practitioners must have their application countersigned by two members of our Association.

Address All Correspondence to the Secretary-Treasurer, Suite 401, 180 Metcalfe St., Ottawa, Canada

APPLICATION FOR MEMBERSH

I, nge!, a qualified practitioner of the Regular School of Medicine hereby apply to be enrolled as a member of the Canadian Medical Protective Association.
I am a graduate of
in the year, and a duly Leeve ! ; rantitioner
of the Province of
n member in good standing of. Medical Association. Committee or Presentit
Signalize
Address
Recommended by two members of the Association, unless applicant is a member in good standing of the Canadian or any Provincial Medical Association
Dated at, 19
The annual fee is five dollars per calendar year, half rates after July 1st. (Payable at par, Ottawa.)



At the first sign of a cold, many physicians feel that treatment should include a mild, yet thorough laxative. Phillips' Milk of Magnesia provides mild laxation, and in addition, is an effective antacid for gastric acidity.

Prescribed as a laxative—it is gentle, smooth-acting without embarrassing urgency.

Prescribed as an antacid—affords effective relief. Contains no carbonates, hence no discomforting bloating.

DOSAGE: Laxative: 2 to 4 tablespoonfuls
Antacid: 1 to 4 teospoonfuls, or

Antacid: 1 to 4 teospoonfuls, 1 to 4 tablets

– Phillips' Milk of Magnesia

prepared only by

THE CHAS. H. PHILLIPS CO. DIVISION

of Sterling Drug Inc.

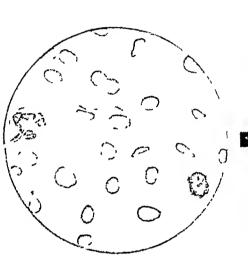
1019 ELLIOTT STREET, WEST . WINDSOR, ONTARIO

FACKAGING Liquid

4 oz. bottle 12 oz bottle

26 oz bottle Tablets

box of 30 s bottle of 75's bottle of 200 s









To the second of the second of





Morale Mile Destin



Correlat Lucing Corry

In addition to bed rest, anti-pyretics and other general measures, a few drops of Sulmefrin bring quick comfort. The danger of sinusitis and other complications is Tessened. Sulmefrin is a decongesting preparation containing sulfathiazole. Its mildly alkaline vehicle helps to dissolve mucous and mucopurulent secretions. It produces effective shrinkage of swollen nasal mucosa without the undesirable reactions accompanying excessive vasoconstriction.

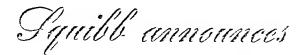
Sulmefrin is a stabilized aqueous solution of an effective vasoconstrictor — dl-desoxyephedrine hydrochloride (0.125%)—plus sulfathiazole sodium (2.5%). Administered by spray, drops or tamponage.

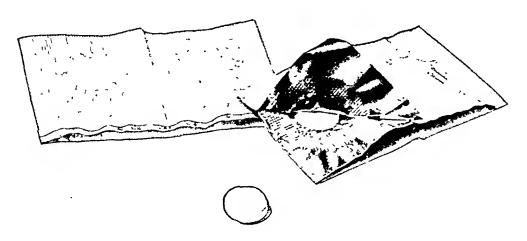
For literature write—E. R. Squibb & Sons of Canada Limited, 36-48 Caledonia Road, Toronto.

SQUIBB

Sulmation of the Sund

For the high dosage essential to the oral route





A NEW 50,000 UNIT TABLET OF PENICILLIN CALCIUM

"Provided enough is used...the oral route of administration of penicillin... is an effective way to treat infections"... requiring "five times as much, on the average..."

Parenteral medication should be used in the initial stages of acute infections, however, and Tablets Penicillin Calcium may be used effectively in the convalescent period following the remission of fever.

The new 50,000 unit Tablets Penicillin Calcium Squibb simplify oral therapy by providing in a single tablet 50,000 units of the ealcium salt of penicillin combined with

0.5 gm. trisodium eitrate to enhance absorption as well as to attain "less irregular, higher and more prolonged blood levels."

You can prescribe the precise number of tablets needed without fear of potency deterioration. Each tablet of Penicillin Calcium Squibb is individually and hermetically sealed in aluminum foil. Economical and convenient. Packages of 12 and 100.

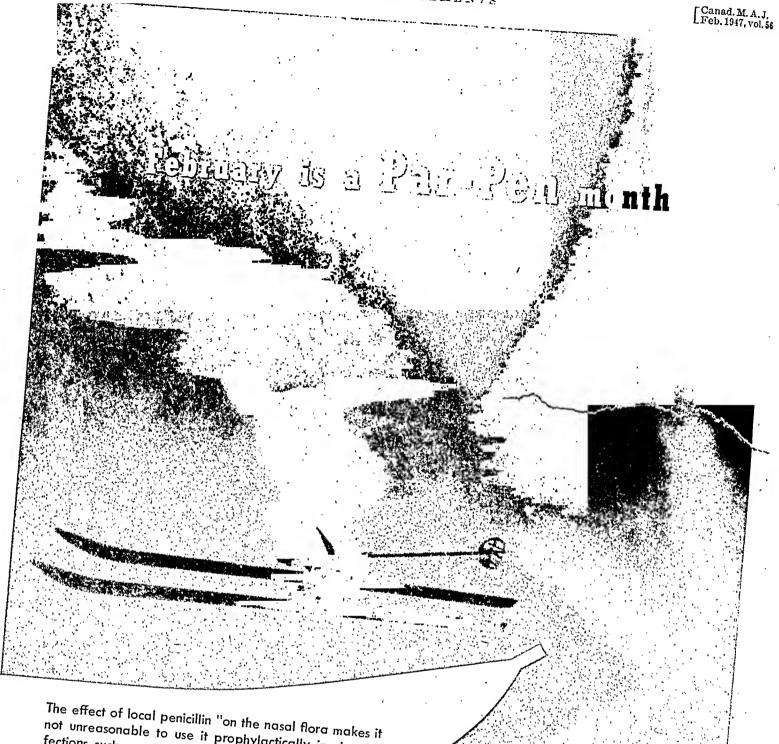
TABLETS Linicillin CALCIUM SQUIBB

FOR TITIRATURE WRITE

E. R. SQUIBB & SONS OF CANADA LTD.

36-48 CALIDONIA ROAD

TORONTO



not unreasonable to use it prophylactically in virus infections, such as coryza or influenza, to reduce secondary bacterial invasion."

(Lancet 1:87, 1946.)

The value and clinical applications of PAR-PEN, which combines the potent antibacterial action of penicillin with prolonged vasoconstriction, will be immediately apparent to every physician.

SMITH, KLINE & FRENCH, Inter American Corp.
Philadelphia • Mantreal
Canadian Distributars;
The Leeming Miles Campany, Ltd., Mantreal

the penicillin-vasoconstrictor combination

Par-Pen

NOW REAL VARIETY IN RARY CFRFAIS







Three cereals different in taste— alike in high nutrition values

With the addition of the new Barley Cereal, Gerber's now offer three special cereals for babies.

These three cereals, Cereal Food (blue box) Strained Oatmeal (red box) and Barley Cereal (yellow box) have distinct differences in taste according to the grains from which they are made. All three are enriched to meet the requirements of the

medical profession for infant nutrition.

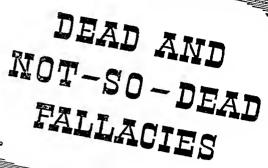
For instance, each is rich in added B complex vitamins derived from a dried specially grown primary yeast. Added rescalcium, and phosphorus are provided or generous measure in all three cereals. In a straining makes for easy digestion by infants as young as one month old. All three cereals are pre-coaked, ready to serve.

Professional Reference Cards and samples of the three Gerber's Cereals will be sent on request, Use compon Lelow.





GEREER PRODUCTS COMPANY
Dept. C32-7, Fremont, Mich., U. S. A.
Gentlement Limity and me complimentary samples of Gerber's Earley Certains well as samples of Gerber's Gere to Powl and Gerber's Semined Outment and Professional Reference Cards
Name
Address
City Prov





A sty, according to an old belief, should be treated by having it licked by a dog. When this treatment failed, the patient might try striking it nine times with a tomcat's tail, or rubbing it with a wedding ring.

Still widespread among people of this generation is the idea that canned foods should be cooked. This, of Course, is not so—for, in the canning process, foods are thoroughly cooked. To serve, they need only be heated and seasoned to taste.

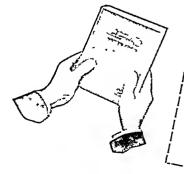


AMERICAN MONTREAL HAMILTON

CAN COMPANY

Now available on request — "THE CANNED FOOD REFERENCE MANUAL"

a handy source of valuable dietary information. Please fill in and mail the attached coupon.

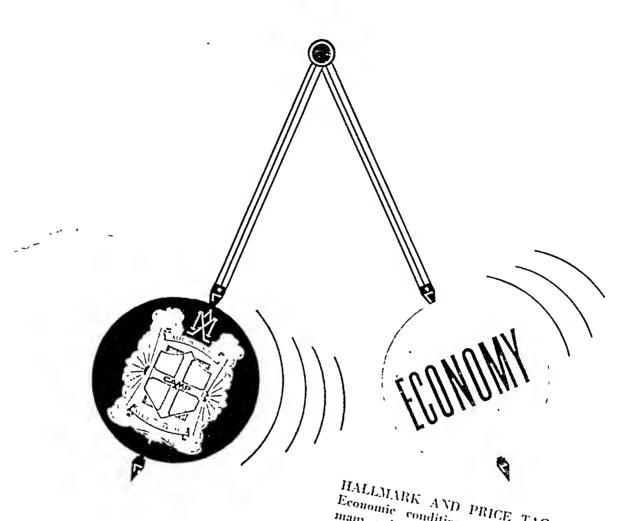


AMERICAN CAN COMPANY Medical Arts Building, Hamilton, Ont

Please send me the new Canadran edition of "THE CANNED

Professional Title

 $P_{rovince}$



Camp Inatomical Supports have festion for four decides for the proscriled end recumminded in most topic for prenatal pushages part of realistic, penculous abdomen.

Incernitation, her her proposition, fees. aferative, Penculous abdomen, ticerof taits, help traptoris, Fermina orthopesis and other conditions If you do not keep a copy for Comp. If the Comp. It can be for the Comp. of the temp Pricence Broke will be sent up in as loved

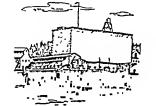
HALLMARK AND PRICE TAG: Economic conditions have shown many swings during the four decades of CAMP history. But in the rhythm and flow of changing conditione, CAMP price tage always have been and always will be conscientionaly based on impusic value. just as the credo and pledge of the CAMP hallmark always have been and always will be expressed in the superb quality and functional off. ciency of CAMP products. All are the measure of true economy to the Patient.

ANATOMICAL SUPPORTS

S. H. CAMP & COMPANY OF CANADA LTD Man Courses, Windows, Original Courses Compared to the Compared to th

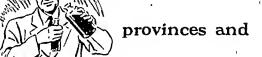


WW hy shouldn't the people of Canada use medicinal cod liver oil



produced here at home? In the war years we found

that the cod liver oil produced in the Maritime



the Gaspe is as good, and in some ways, superior to imported oil. Its



vitamin A potency is higher than any oil in the world, and

its vitamin D content meets all the requirements of the B.P. and the U.S.

Pharmacopæia. Canada must keep the new industries, born out of the war,

if she is to have full employment



for her returned veterans.

The medical profession by prescribing Canadian cod liver oil,

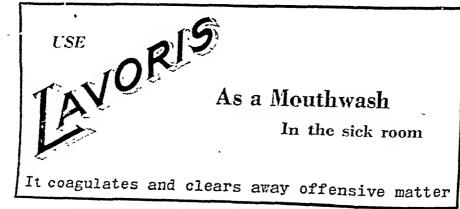


can show their faith in this new industry and the fine product it offers.

Atlantic Cod Liver Oil Producers' Association

INDEX TO ADVERTISERS

	PAGE	PAGE	
Abbott Laboratories	نندد , نددد	Kellogg Co. of Canada Ixxvii	
Allen & Hanburys	lxix	Lafayette Laboratories laxii	
American Can Co	xciv	Lakeside Export Corp.	
American Cystoscope	۱۷iii	Lavoris Chemical Co.	
Ames & Co	laxavi	Lewis & Co Ltd., H. K	
Angier Chemical Co	lxxxy	Libby, McNeill & Libby	
	lvi	Lippincott Co., J. B Front Cover	
Anglo-Canadian Drug Co. Anglo-French Drug Co	i	Macmillan Co. of Canada xxxiii	
Ango-French Drug Co Ansco of Canada	N N	Mead, Johnson & Co. Outside Back Cover	
Armour Laboratories.	viii	Medical Audit Association . Ixxiv	
Atlantic Cod Liver Oil	vevi	Medical Correspondence College , xxxvi	
		Merck & Co viii, Ixviii	
Ayerst, McKenna & Harrison	243, Alv, Alvi laxvi	Merrell Co., Wm. S	
Babee-Tenda Corp. of Canada	. AXXIV	Metal Fabricators Ltd . Ixxxv	
Bank of Montreal Barnes Co., A. C.	liv	Midy Laboratories Ixxiv	
The same So Dimete	, xxiv	Mowatt & Moore Ltd lxxxix	
Baxter Laboratories	. xxiv	N.Y. Polyclinic Medical School . xxxvi	
Daxier Laboratories,	lxvii	N.Y. Post-Grad. Medical School	
Bayer Co Becton-Dickinson Co	vi	Noxema Chemical Co. Ltd	
Decton-Dickinson Co	, lxxv	Parke Davis & Co	
Borden Co	, 1333	Philips Industries Ltd xivii	
British Drug Houses British Felsol Co. Ltd British Medical Association	Incide Real Cover	Phillips, Chas H. Ixxxviii	
Dillish Pelson Co. Ltd	mside back Cover	Poulenc Frères	
British Medical Association	laifi, laiv	Prevost San xxxviii	
Burroughs Wellcome & Co		Procter & Gamble Co	
Camp & Co., S. H	xev Ixxx	Reckitt & Colman Ltd xliv	
Canada Starch Co Canadian Canners Ltd	laii	Rougier Frères v	
Canadian Kodak Co	245		
		Royal College of Physicians & Surgeons xxxiii Rverson Press xxxiii	
Canadian Medical Protective	lxvi	Schenley Laboratories xiv	
Centaur, Castoria . Ciba Co. Ltd	xxviii	Schering Corp Mi	
Classified Ada	XXXIV, XXXV	School of Hygiene lxxxiii	
Clay-Adams Co. Inc	lxxxvi	Sharp & Dohme Ltd xcviii	
Coca-Cola Co. of Canada Ltd	. Ixxviii	Shuttleworth Co. E. B xii, Ixxi	
Connaught Laboratories	. 247	Singer Sewing Machine xxv	
Connaught Laboratories Cow & Gate (Canada) Ltd	iii	Smith, Kline & French xx, xvii, lxv, xcii	
Cream of Wheat Corn	lviii	Spencer Corsets Ixxvi	
Cream of Wheat Corp Davis & Geck Ine	lxx	Squibb & Sons, E. R. xc, xci	
Denver Chemical Co	lxxiii	Starkman Chemists lxxviii	
Desbergers-Bismol Laboratories	lyvi lyvii	Stearns & Co., Frederick xxix, lix	
Dewcy & Almy Chemical Co	lxxx	Stevens & Son Co. Ltd., J lxxxiii	
Dominion Oxygen Co. Ltd	lxi	Synthetic Drug Co . ii	
Durum Cereals Ltd	lxxxrii		
Edde Ltd., I.	lyyy	randy-ivason co	
Ell Lilly & Co. (Canada) Ltd Fellowship of Medicine Financial Collection Agencies	Inside Front Cover	Tailby-Nason Co li United Kingdom	
Fellowship of Medicine	. XXXV	University of London	
Financial Collection Agencies .	. lxxix	Wampole & Co. Ltd., H. K. Ixxix	
1 To vit at Co., Chas. I.	V1X+X11	Wander Ltd., A lvii	
Gallia Laboratories	lxxxiv		
Lightner Products Co		Washington Institute xxxvii	
Gomeo Surgical Mfg. Co. Guerbet Laboratories	lxxv	White Laboratories xvi, xvii	
Guerbet Laboratories	lxxiv	Will, Chas. R xxvii	
Hanger Limb Co	Ixxv	Wingate Chemical Co. vij	
Homewood Sanitarium .	xxvviii	Wroth & Dro (County)	
Horner Ltd., Frank W	. , iv	Wyeth & Bro. (Canada) ix, x, lxxvii, lxxxiii	
Jodine Educational Bureau	lxxxiv	X-Ray & Radium Luminous Industries lx	
Hauger Limb Co Homewood Sanitarium Horner Ltd., Frank W Iodine Educational Bureau Johnson & Johnson Ltd	iiikx	Zenith Radio Corp	
PLEASE MENTION THE JOURNAL WHEN WRITING ADVERTISERS			



new! improved treatment

for

coryza sinusitis rhinitis nasal congestion

PROTERIONS

antibiotic nasal decongestant

bécause:

- 'Prothricin' decongestant contains tyrothricin (0.02%), potent, nontoxie topical antibiotic with wider antibacterial scope than the sulfonamides; quicker, more prolonged local antibiotic action than penicillin; low surface tension; greater permeability and stability than penicillin.
- PROTHRICIN' decongestant maintains its antibacterial efficiency even in the presence of pus and mueus.
- 'PROTHRICIN' decongestant serves to re-establish normal infranasal function since it is isotonic, with a buffered pH of 5.5-6.5, does not impair normal intranasal physiologic processes, and does not interfere with ciliary activity.
- 'PROTHRICIN' decongestant is clear and free-flowing, unlike intranasal sulfonamide suspensions, and does not form mucosal crusts that may block drainage.
- 'PROTHRICIN' Antibiotic Nasal Decongestant also contains 'Propadrine' hydrochloride (1.5%), a highly efficient vasoconstrictor, notably free from undesirable side-effects of ephedrine and its analogs.



Supplied in 1-ounce bottles with dropper assembly

SHARP & DOHME (CANADA), LTD.. TORONTO 5. ONT.



THE THERAPY OF ASTHMA

The treatment of asthma demands consideration of underlying causes and factors. The former are variable, but the underlying factor—bronchospasm—is always the same.

Whether the cause is removable or not, the bronchosposm can be treated successfully with FELSOL.

Chronic cases yield to patient treatment with FELSOL—the preparation which has long enjoyed the confidence of the medical profession and has been prescribed constantly by doctors in hospital and private practice.

NO MORPHIA - NO NARCOTICS

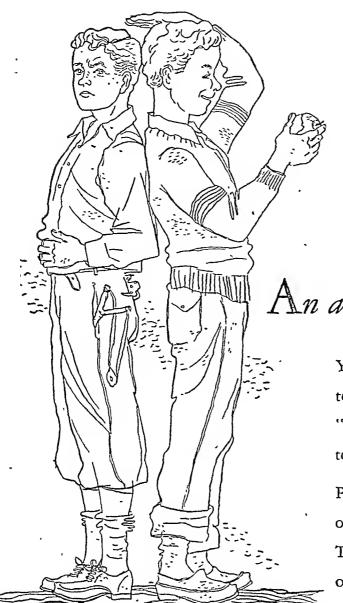
Physicians' samples and I terature are lable on request to



Sole distributors for Consés

THE ANGLO-FRENCH DRUG COMPANY 200 ST. CATHERINE STREET EAST, MONTREAL

BRITISH PHISOL COMPANY 11D. T. 212 ST. JOHN STREET, IONDON, LCI



An answer that raises a question

Youngsters can quickly settle the question as to who is the "bigger." The more subtle question, "Am I as 'big' as I ought to be?" is more difficult to answer.

Physicians know that an important factor in optimum growth and health is an adequate diet.

To assure adequacy of vitamin intake, one or more of the essential vitamins are commonly prescribed.

'Homicebrin' (Homogenized Vitamins A, B₁, B₂, C, and D, Lilly) contains five vitamins known to be most essential for optimum growth and development. Up to two times the optimal daily requirements are provided in approximately one teaspoonful (5 cc.). 'Homicebrin' is pleasant to the taste and is miscible with milk, water, or orange juice. It is available in bottles of 60 cc. and 120 cc. at retail drug stores everywhere.



Shifting Sand Dunes

Most drugs employed to reduce blood-pressure are like the shifting sand dunes. Their effect is here today and gone tomorrow

When you desire lasting reduction of blood-pressure, specify HYPOTENSYL. Its triple action gives full clinical satisfaction in most cases of vascular hypertension.

First, blood-pressure is reduced 20-30 mm. Hg beginning in about twelve hours

Second, vasodilatation can be sustained indefinitely by continued medication

Third, associated headache and dizziness are effectively reficied in 75% cases

Hypotensyl contains Viscum album (European mistletee) hupping extract and insulin-free pancreatic extract in synergistic combination

Average dose 1 to 2 tablets three times daily, one has first at the meals. Supplied in bottles of 50 and 500 tablets

HYPOTENSYL

for

PROLONGED REDUCTION OF BLOOD-PRESSURE

ANGLO-FRENCH DRUG CO. LTD.

209 ST. CATHERINE STREET EAST

MONTREAL, P.O.



AMINOPHYLLINE

(Theophylline-Ethylene Diamine)

The most satisfactory of the Xanthine compounds, Aminophylline has definite value in the treatment of Asthma resistant to Epinephrine, for the relief of Cheyne-Stokes respiration, as a diuretic, in Angina Pectoris, etc.

"BUY CANADIAN"

"Brand Synthetic" Aminophylline is available in tablets and in ampoules.

Tablets
Sugar-coated or C.T.
Bottles of 100 and 500, 1½ grains
Bottles of 100 and 500, 3 grains

Box of 6 ampoules, 10cc (3% grains)
Box of 6 and 12 ampoules, 10cc (7% grains)

SYNTHETIC DRUG COMPANY LIMITED

243 College St., Toronto - Phone Midway 8055

ABSTRACTS OF WORLD MEDICINE

Published monthly £3.3.0 p.a.

ABSTRACTS OF WORLD SURGERY OBSTETRICS AND GYNAECOLOGY

Published monthly £2.2.0 p.a.

FIRST PUBLISHED JANUARY 1947

Published by the B.M.A. and conducted under the general direction of The Editor of the British Medical Journal.

Subscriptions to Publishing Manager

British Medical Association, B.M.A. House

Tavistock Square, London, W.C.1

For your irritated patients . . .

a nonirritating stable solution

SOLUSEPTAZINE

with EPHEDRINE

For local application, in infections of the nose, throat and ear.

A happy combination of the least toxic of the sulphonamide derivatives with ophedrine. Its neutral pH renders it nonirritating to the most sensitive mucosa.

Soluseptazine with Ephedrine, supplied in bottles of 30 c.c. and 250 c.c., can be applied with diopper or stantage, or with the aid of a swab or tangen.

Samples on request

Laboratory Poulenc Frères

In iron deficiency anaemias —

FERAD

Mo.2

Iron in the ferrous state is generally considered as being the most effective form for the treatment of iron-deficiency anaemias. 'Tabloid' brand 'Ferad' No. 2 contains 3 grains of anhydrous ferrous sulphate. The soluble alkali incorporated in the formula performs an important function in counteracting the astringency of the ferrous salt, thus ensuring satisfactory gastric tolerance of large doses.

It is a well-tolerated, effective and economical preparation.



Each sugar-coated product contains

Ferrous Sulphate, Anhydrous, - - - - - gr. 3 (equivalent to gr. 5½ ferrous sulphate, B.P.)

Sodium Carbonate, Anhydrous, - - - - - - gr. 2

Bottles of 100 and 500 products.



BURROUGHS WELLCOME & CO.

(The Wellcome Foundation Ltd.)

MONTREAL

ASSOCIATED HOUSES: LONDON NEW YORK - SYDNEY CAPE TOWN - BOMBAY - SHANGHAI - BUENOS AIRES

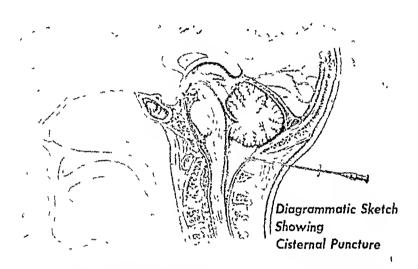


in the treatment of VARICOSE VEINS HEMORRHOIDS - PHLEBITIS and VARICOSE ULCERS

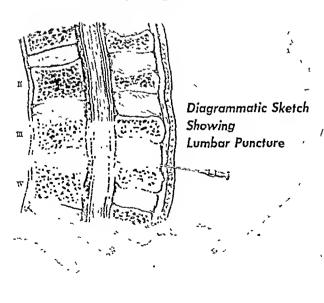
LORAVINE GETS RESULTS

Canadian Distributors: 350 LE MOYNE STREET, MONTREAL Rougier Freres

In the Management
of Asymptomatic
and Paretic
NEUROSYPHILIS



RECOMMENDED METHODS OF OBTAINING SPINAL FLUID



STATISTICAL STUDIES reveal that approximately thirty per cent of syphilitic patients exhibit abnormalities in the spinal fluid during initial examinations, without displaying elinical symptoms of cerebrospinal involvement. Although adequate routine treatment of early syphilis will prevent the appearance of abnormalities in most cases, the use of Tryparsamide Merck combined with adjuvant therapy, e. g., hyperthermy or penicillin, is suggested in resistant cases.

In incipient eases of dementia paradytica, the use of Tryparsamide Merck, combined with other appropriate forms of therapy, is known to produce varying degrees of symptomatic improvement. While favorable results may not be expected in more advanced cases of general parcsis or tabes dorsalis, when treatment is begun sufficiently early and continued over a long period of time, Tryparsamide Merck may arrest deterioration and contribute to the prolongation of life.

The effectiveness of Tryparsamide Merck in the treatment of resistant cases of neurosyphilis probably is due to its unusual capacity to penetrate the meningovascular barrier of the central nervous system.

TRYPARSAMIDE MERCK

CONNCIL



An outstanding therapeutic agent in neurosyphilis

ACCEPTED

MERCK & CO., Limited Manufacturing Chemists MONTREAL - TORONTO - VALLEYFIELD



GLYSEN

FOR ATONIC CONSTIPATION

ADULTS: 2 to 4 tablets daily

CHILDREN: 1 to 2 tablets daily

Samples and literature on request

PHARMACEUTICAL DEPARTMENT

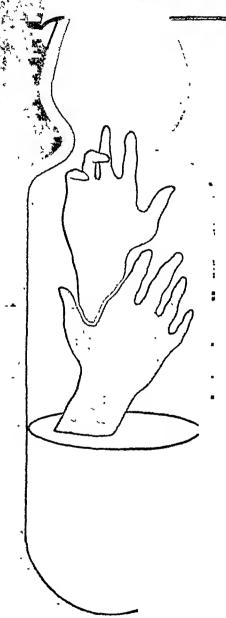
THE WINGATE CHEMICAL COMPANY LTD.

MONTREAL



AGAIN IN 1947

"the best form of treatment"



"...gold salts...afford the best form of treatment in rheumatoid arthritis" and "...will markedly change the course of the disease in a significant percentage of patients."

SOLGANAL-B OLEOSUM (aurothioglucose) continues to be one of the most widely used gold compounds because it provides maximum therapeutic benefits with minimal toxicity.

SOLGANAL-B OLEOSUM

In SOLGANAL-B OLEOSUM (C₆H₁₁O₅SAu) water soluble gold is suspended in oil solution to provide steady, even and prolonged absorption from intramuscular depots. In this form gold has benefited approximately four out of every five patients afflicted with rheumatoid arthritis.

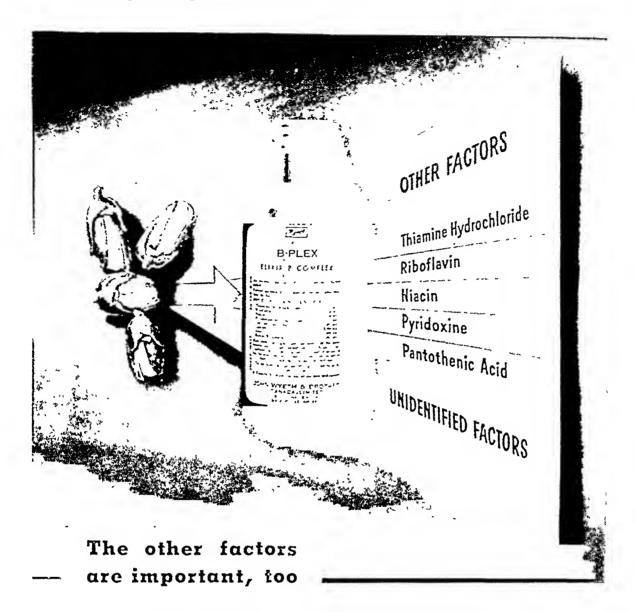
Details of administration accompany each package of SOLGANAL-B OLEOSUM; or they may be obtained by writing the Medical Research Division.

I. Ragan, C., and Boots, R. H.: New York Med. 2:21, 1946.

Trade-Mark SOLGANAL-B OLEOSUM-Reg. U.S. Pat. Off.



Schering CORPORATION LIMITED
137 ST. PETER STREET
MONTREAL, QUE.



The superior results obtained from natural vitamin B-complex therapy, are due to the combined effect of many components, some well known and others as yet unidentified.

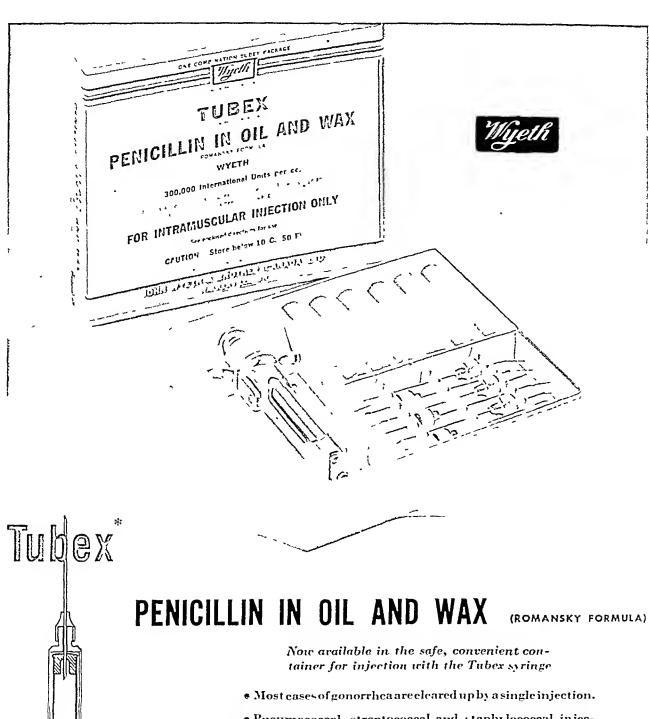
The increasing preference for natural vitamin B-complex therapy parallels the growing concept that B-vitamin deficiencies are usually multiple.

B-PLEX Wyeth is an aqueous extract of rice bran—one of nature's richest sources of the B-Complex—Biologically Balanced' by the addition of crystalline B Lactors. B-PLEX supplies thiannine hydrochloride, riboflavin and macin in the ratio of 1:2:10° PLES adequate amounts of pyridoxine, pantothenate acid PLES the unidentified factors naturally present in rice bran extract.

Trate Mark Per se tarata

[&]quot;The evaluation of Preparations of the vitat in L. Complex C. M. J. Max, 1912

the one territories are been as 185 exception of the college of th



- Pneumococcal, streptococcal and staphylococcal injections usually respond to one or two Tubex per day.
- Therapeutic blood levels are maintained in most patients for twenty-four hours.

The Tubex assembly combines convenience with safety
... By exerting negative pressure (withdrawal) it is easy
to make certain that a blood vessel has not been entered
prior to injection.

Packages of 6 Tuber (1 cc. size) with Tuber syrings and 6 Tuber needles. Each Tuber contains a single dose of 300,000 international units of dried penicillin calcium in peanut oil with 4.8% becswar. Single Tuber with needle are available. Directions with each package.

*Trade Mark Reg. in Canada



SYMPTOMS

"Meadaches" and discord in region of cast room. May become acute and spread to other parts of the hospital in cases of extreme inconventioned or loss of time.

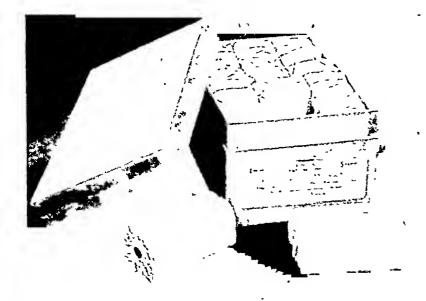
USUAL

Difficulty of maintaining uniformity of handmade bandages and adequate stock of necessary sizes due to dimited personnel.

RECOMMENDED TREATMENT

Quick relief can be obtained by switching to "Orthoplast" Bandages, Saturate quickly. Always ready, Conserve time, Jahor and materials.

FOR STRUMMEN CAST TECHNIQUE



...advise your hospital to standardize on

"ORTHOPLAST"

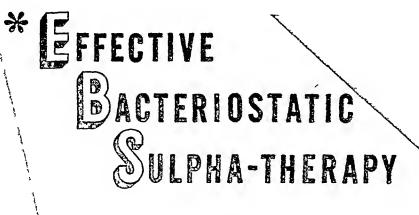
PLASTER OF PARIS

BANDAGES

Orthoplast Bandages — neat and time saving, with less waste and greater economy — provide uniform, reliable immobilization and support.

Orthoplast Bandages are made from the best-selected grade of plaster of Paris spread uniformly on serrated-edge surgical crinoline of 32 x 28 mesh. The serrated edges of the crinoline prevent ravelling and tangling of threads that hinder the ap dication.

Johnson Johnson





1 OZ. TUBES,

4 AND 16 OZ. JARS

VITAZOLE OINTMENT &BS

FOR WOUNDS, BURNS, AND ABRASIONS

In wounds, burns, and abrasions,
Vitazole sterilizes the site and stimulates
epithelization.

VITAZOLE, E.B.S. combines the bacteriostatic power of the sulphas with the bactericidal action of Cod Liver Oil.

COMPOSITION OF VITAZOLE:

Cod Liver Oil	-	-	-	-	-	-	-	-	-	50%
Sulphanilamide	-	-	-		-	-	-	-	-	4%
Sulphathiazole	-	-	-	-	-		-	-	-	4%
Urea	-	-		-	-	-	-	-	-	5%
Ointment base	-	-		•	-	-	-	-	-	37%

EACH GRAM CONTAINS ADDED:

Vitamin A - - - - - - - 1,000 Int. Units
Vitamin D - - - - - 100 Int. Units



SHUTTLEWORTH CHEMICAL CO., LTD. TORONTO, CANADA



Lewis M. Early

... From Dermatitis to Epidermoid Carcinoma to General Metastasis

IT will be remembered that Roentgen discovered the x-ray in 1895.

In May of 1896, Dr. Lewis Mortimer Early exhibited a set of radiographs, made by himself, before the Ohio State Medical Association.

His habitual use of a hand-fluoroscope to test the output of his apparatus resulted in a dermatitis of his left hand. By 1903, it became necessary to amputate several fingers.

The appearance, soon after, of epidermoid carcinoma on the brok of Dr. Early's left hand resulted in successive amputations of the hand, the forearm, and finally the upper arm at the shoulder.

He died in 1912 from general metastasis.*

These monthly pages are dedicated to those great roentgeno ogists who have given so much to the progress of x-ray research.

We are gled, as manufacturers, to have had some hand in that progress, which goes on, even today, in our plants and laboratories As in the post, we will continue to seed the Assessitized materials for redicated by terror and highest possible decree of technical ending dependability. Ansco of Canada Limited, 60 Front Street W., Toronto I, Ontario.

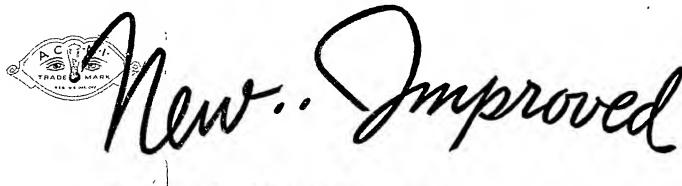
*American Martyre To Science Through The Roentgen Rays, by Percy Brown, M.D. Published by Chriles C. Thomas, Springle'd, Illinois.

- ASK FOR-

Ansco

X-RAY FILMS AND CHEMICALS

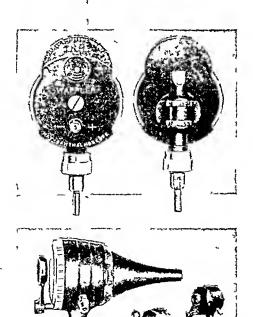
Number 2 in a series



ACMI DIAGNOSTIC SETS

FOR MORE EFFECTIVE INSPECTION OF EYE, EAR, NOSE AND THROAT

American Cystoscope Makers is proud to present its new Diagnostic Sets for eye, ear, nose and throat examination. A significant improvement of outstanding importance—exclusive with the ACMI ophthalmoscope—is the coating of its lens system with a reflection reducing substance which greatly increases the amount of light transmitted, improves the definition and clarity of the image, and eliminates halo, flare and ghost images.



Outstanding Features of the WAPPLER-MAY OPHTHALMOSCOPE HEAD

1. No adjustments, no focusing necessary. 2. Immediate selection of 3 light beams. 3. Instant selection of color filters. 4. Nine combinations of filters and apertures available. 5. Sealed-in filters. 6. Single lens disc containing 24 dioptric values. 7. Famous double reflection Wappler prism. 8. Screw-type interchangeable brilliant lamp. 9. Bull's-eye sight hole. 10. Self-aligning and locking-in battery handle. 11. Practically unbreakable, light-weight, all-metal body.

Outstanding Advantages of WAPPLER OTOSCOPE HEAD

One instrument for open operation or closed inflation.
 Greater light intensity with unobstructed shadow-free vision.
 Interchangeable screw-type brilliant lamp.
 Tapered head for greater freedom of instrumentation.
 Boilable moulded specula for ear and nose.
 Self-aligning and locking-in battery handle.

ADVANCED DESIGN • PRECISION CONSTRUCTION • FLEXIBILITY and DURABILITY UNDER HEAVY OPERATING CONDITIONS

STANDARD SET Complete for the student, snugly fit into a plush-lined case, comprising ophthalmoscope head (with built-in color filter and aperture changer), otoscope head with three specula, medium battery handle, and one spare lamp. Can accommodate additional specula and a tongue depressor head as needed.

COMPACT SET Designed for the practicing physician, it includes on ophtholmoscope head (with built-in color filter and aperture changer), on otoscope head, 5 ear and 1 nasal specula, small bottery handle and extro lamp. Space reserved for a tangue depressor head and additional specula.

LARGE SET Incorporates an atoscope head, 5 ear and 1 nosal specula, ophtholmoscope head (with built-in color filter and operture changer), o lorge battery handle, 1 extro lamp and cose provides space for a tongue depressor head, additional specula and a replacement lamp.

PROFESSIONAL SET This is the most complete Wappler set, containing an otoscope head with 5 eor and 1 nasal specula, tongue depressor head, ophtholmoscope head (with built-in color filter and aperture changer); large battery handle, on extro lamp, and a rubber bulb for insufflation.

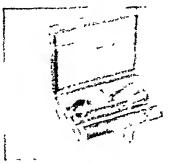




CATALOG NO. 1107



CATALOG NO 1107



CATALOS NO TITE

AMERICAN CYSTOSCOPE MAKERS, INC.

1241 LAFAYETTE AVENUE · · NEW YORK 59. N. Y.



INGRAMI & BEILL

RELIABILITY

doubly
valuable
in the
treatment of
overweight...

In a recent clinical study, Hawirko and Sprague* found that *Dexedrine* (d-amphetamine) exerts two beneficial actions in the treatment of overweight:

- 1. It depresses the appetite "sufficiently to enable the patient to follow the diet closely without feeling it too great a burden".
- 2. Its unique central nervous stimulant effect combats the feeling of "discouragement and irritability which usually accompanies rigid adherence to prolonged use of a low calorie diet".

 **Canad. M. A. J. 54:26 (Jan.) 1946

Dexedrine Sulfate tablets

(dextro-amphetamine sulfate, S.K.F.)

For Intensive Medication

WITH THE B VITAMINS PLUS VITAMINS C AND D







INDICATIONS

The diets in the following circumstances are actually or potentially deficient in vitamins, and should therefore be supplemented:

DIETARY RESTRICTION: Peptic ulcer, colitis, diabetes mellitus, chronic alcoholism, food fadism, anorexia nervosa, heart disease, nephritis, old age.

FAULTY ABSORPTION: Colitis, coeliac disease, dysentery, advanced heart disease.

EXTRAORDINARY REQUIREMENTS: Hyperthyroidism, acute infections, preoperatively and post-operatively, pregnancy and lactation, debilitating disease, i.e., tuberculosis, arthritis, chronic asthma, etc.

RADIATION SICKNESS: For the prophylaxis of radiation sickness "Beforte" tablets should be started 3 or 4 days before radiation treatment is given, and continued throughout the entire course of treatment.

"BEFORTE" TABLETS

FORMULA

A concentrate of brewer's ve	- 01	• •	150	3 6
Vitamin By (Thiamine HCI)-	•	-	:	3 0
	(1	000	1-1.	u- •5 *
Fibefaxin (Vitamin B.1 - +			:	3
Niccinamide			121:	r d
*Paridexine HCI (Vitemin E)			1	ma
*Calciam dipantathenate -				5 2
Vitama D		500	1.0	(n *5
Vitar in C (Arcorbic acid) +			2.5	5 7
				وأحسن

"The sign france of these sitam is (Pyr doxine and Colri, mid-partothenate) in himan nitrition is not set established

DOSE: One to three tablets daily.

MODE OF ISSUE:

Farries of 30, 100 and 500 tablets

"BEFORTE" LIQUID

Each teaspoonful is equivalent to one Befortel Tablet, without Vitamin C.

Beforte liquid is compatible with skrups splittens, it may be used as a pleasant tosting vehicle, tich in sitamini, for drugs such as bromides, which are splittle in male skrup.

DOSE: 1 to 2 level teaspoonfuls do ye

MODE OF ISSUE: 4 or and 8 or, bottles





"ALAMINO"



Glycine — one of the amino acids — chemically combined with Aluminum produces a new drug of significant value

in the Treatment of

HYPERACIDITY and PEPTIC ULCER

Alamino was developed by Krantz, Kibler and Bell. They found that an aluminum salt of an amino acid such as glycine provided a dual effect: an immediate combination with acid by the amino group of the amino acid and a secondary prolonged buffering action by the decomposition of the aluminum salt, the hydrogen ion concentration of the gastro-intestinal contents being thus stabilized between pH 4 and 5. Proof of effectiveness of Alamino has been established by both pharmacological and clinical tests in Canada and United States.

"ALAMINO"

PRESENTS 5 ADVANTAGES

- 1. Rapid therapeutic action, prompt relief of pain in uncomplicated peptic ulcer cases.
- 2. Prolonged antacid action without danger of alkalosis.
- 3. High acid-buffer capacity with minimum aluminum content (40% less than dried aluminum hydroxide) made possible by its unique chemical combination with glycine.
- 4. Rapid disintegration with immediate dispersion in the stomach contents.
- 5. Small, pleasant-tasting tablets which need not be chewed before swallowing.

"ALAMINO"

C.T. No. 381 Ficul

Each tablet contains:

Aluminum glycinate - - - - - - - - 7.7 gr. (0.5 G.)

"ALAMINO" COMPOUND

C.T. No. 382 இவி

Each tablet contains:

DOSE: One or two tablets, one or two hours after meals and upon retiring.

MODE OF ISSUE: Bottles of 50, 100 and 500 tablets.



For the Treatment of

CARDIAC PAIN of CORONARY INSUFFICIENCY, NON-SPECIFIC ASTHMA, BILIARY COLIC.





(THEOPHYLLINE-ETHYLENE-DIAMINE-AMINOPHYLLINE

"THEOLAMINE" TABLETS "Theolamine" and "Noctinal"

E.C.T. No. 412 కోము్ (Enteric coated)

Theolomine 3 gr. Noctinol 1/2 gr. Sadium ethyl sec -butyl berbiturete 5001 Dase: 1 tablet three times daily.

"Theolamine" C.C.T. Na. 313 కొము

(Chocolate cooted)
Theolamine

"Theolamine" and Phenobarbital

11/2 gr.

C.C.T. No. 326 Faul (Chocolote caated)

Thealamine 11½ gr Phenobarbital 1½ ar

Dose: 1 or 2 tablets three times daily.

Available in bottles of 100 and 500 tablets

"THEOLAMINE" AMPOULES

Ampoule No. 541 Fins

Thealamine 71/2 gr. (0.5 G.)
Distilled water ta 10 cc.

Dose: 10 cc injected slawly (3-5 minutes) intravenously and repeated every 6 haurs if necessary

Available in baxes of 6 and 25 ampaules.

Complete list of formuloe on request.

1. The administration of "Theolamine" results in dilation of coronary arteries increasing the blood flow through heart muscle. Cardiac anaemia is relieved and the limits of painless effort increased. "Theolamine" is rapidly absorbed and its effects persist for several hours.

"Theolamine" is a powerful diuretic as well as a dilatar of caronary vessels. "Thealamine" and Digitalis far the failing heart pravide improved caranary circulation, economy of cardiac muscular effort, and facilitate water elimination. The cambination of Digitalis in small amounts and "Thealamine" is apparently more effective than either drug used alane. The addition of a small dase of phenabarbital is af distinct value in quieting the restless, warried, high-strung patient.

"Theolamine" and "Noctinal" are especially useful in those cases where aversedation of the patient is to be avaided. The enteric coating prevents gastric irritation.

- 2. "Thealamine" pawerfully dilates lesser branchi and bronchiales. A single intravenous injection of 0.5 gram of "Thealamine" will give dramatic relief lasting for as lang as six hours in cases of asthma refractary to epinephrine. In less acute cases, prevention and relief of attacks may be obtained by the regular administration of "Dilamine" (E.C.T. No. 414 "Fixest").
- 3. The intravenaus injection of 0.5 gram of "Thealamine" relieves the pain of biliary colic more effectively than any measure previously employed. Thealamine causes good relaxation of the principal bile ducts and the Sphincter of Oddi, and thus permits the passage of the gall stone into the duadenum.

In Eczema

or whenever coal tar therapy is indicated . . .

SUPERTAH (NASON'S) "has proven as

valuable as the black coal tar preparations"

Swartz and Reilly, "Diagnosis and Treatment of Skin Diseases," p. 66

SUPERTAH is WHITE — not black — so hardly noticeable on the skin.

Easy to remove. Will not stain or discolor skin, bedding, clothing. No tarry odor.

Non-irritating and nonpustulant, can be left on indefinitely with no fear of dermatitis.

> Patients use SUPERTAH willingly — freed from the objectionable features of black coal tar ointments.

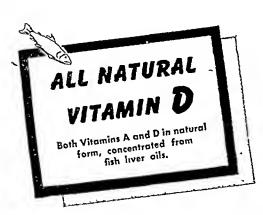
SUPERTAH (NASON'S) is distributed ethically in 2 oz. jars (in 5% or 10% strength)

TAILBY-NASON COMPANY, Kendall Square Station, BOSTON 42, MASS.

NEW INCREASED POTENCIES!

100% MORE VITAMINS A AND D OVER 40% MORE VITAMIN B. NO INCREASE IN PRICE!

YI-SYNERAL





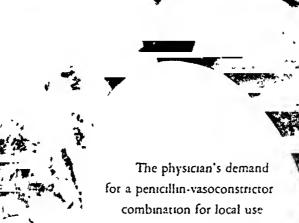
Each vitamin capsule (Special Group potency) now supplies:

Vitamin A (natural)	12,000 U.S.P. Units
Vitamin D (natural)	
Thiamine (B ₁)	5.0 mg.
Riboflavin (B ₂)	3.5 mg.
Niacinamide	
Pyridoxine (B _b)	2.0 mg.
Calcium Pantothenate.	5.0 mg.
Ascorbic Acid (C)	75.0 mg.
Alpha Tocopherol (E)	4.0 mg.
B Complex factors from	150 mg. yeast

The Vi-Syneral Mineral Capsule furnishes: Calcium, Phosphorus, Iron, Iodine, Copper, Manganese, Zinc, Magnesium.

New increased potencies (with natural Vitamins A and D) are also available in other special Vi-Syneral formulas: INFANTS and CHILDREN CHILDREN and ADOLESCENTS • ADULTS • EXPECTANT and NURSING MOTHERS.

U.S. VIIMIN CORPORATION 5. 220 E CEST O WEW YORK IN WARE



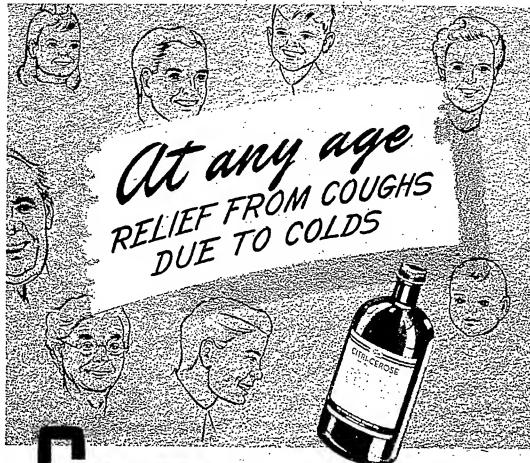
for a penicillin-vasoconstrictor
combination for local use
has been answered with PAR-PEN
Potent antibacterial action
rapid and prolonged vasoconstriction
wide margin of safety
all these contribute to
PAR-PEN's usefulness
in appropriate rhinological cases

Smith, Kline & French Inter American Corp.
Thi adelphia + Montreal

Concides Distributors The Learning Hiller Co. Ltd. Alcoholis

the penicillin-vasoconstrictor combination

Par-Pen

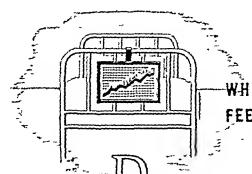


LITRI-CEROSE

Contains no sugar. May be safely prescribed for the diabetic patient.

Wyeth

TRADE MARK REG. IN CANADA



WHEN FLAMES OF HYPERMETABOLISM FEED ON BODY PROTEINS . . .

LIPLETION of the protein depots is a constant threat during fever, and in many cases diet alone is inadequate to compensate for the increased nitrogen loss. Parenamine, parenterally administered, effectively restores and maintains positive nitrogen balance in most cases; thus it speeds recuperation - aids in preparing the patient for surgery and in shortening convalescence.

Parenamine Amino Acids Stearns

PARENTERAL FOR PROTEIN DEFICIENCY



ALL FAT MALKETTE . MOCONIAL PARK ENTRA

नाम है है। इस्ट्रेड मध्यादर्श है । यह

to product in the man provides

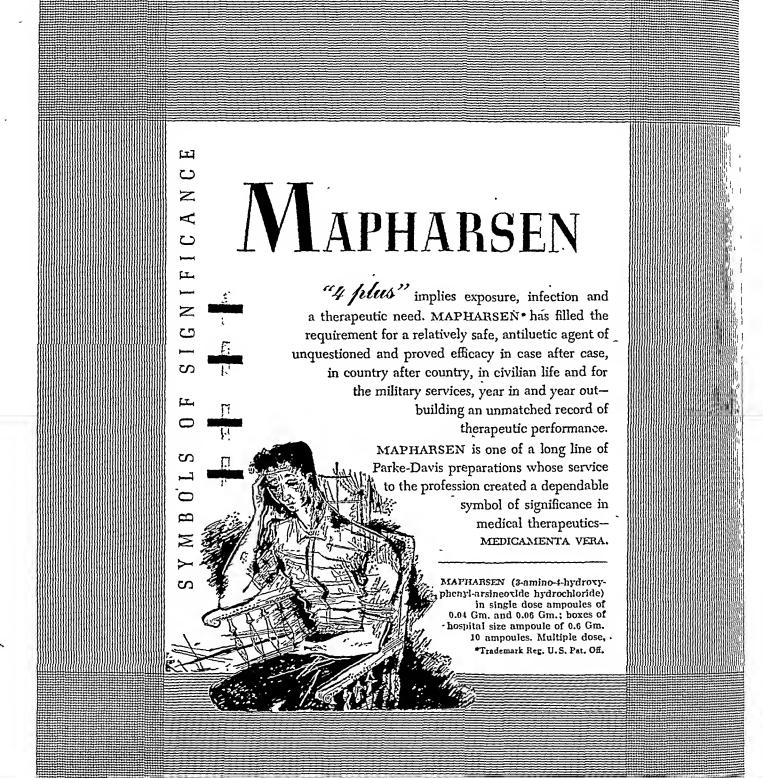
ADMINISTRATION --- 1- 1+ ++ معطان والراحات المحال الأبيو الإلام ووددم 11

PARENAMINE is a simile some to the fire fact the procedurer, an male tonotatiticam nacirimania immediationa necitatitima Continues, one regarition of

INDICATED in promotion on an PARENAMINED IN LINE HEALT FOR THE WAS COME TO CONTINUE OF

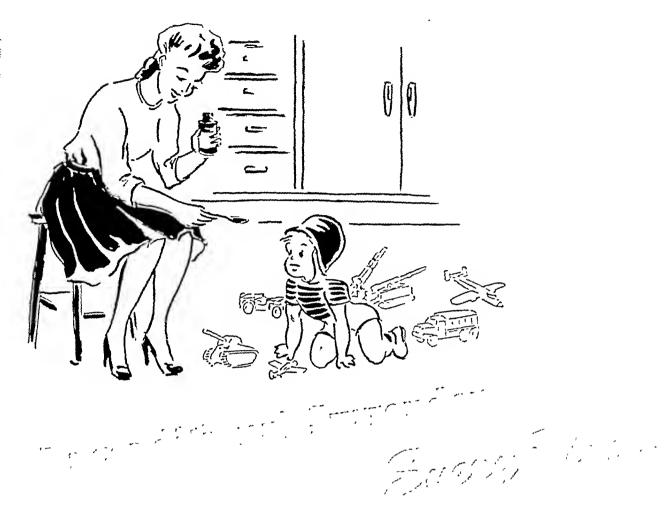
deline trat e gaver men nat

8 4 1 8 8 9 7 6 6 8 8 6 8 6 9 5 7 1 " grade radice tradic decade bath 1 -472





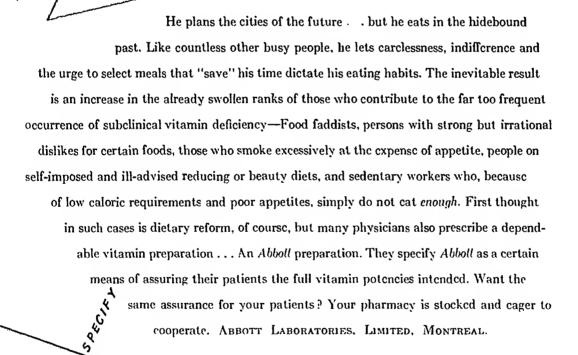
>



There is no stalling or quibbling on the part of small children when a palatable, liquid preparation such as Vi-Daylin is given. Most children have difficulty in swallowing tablets or capsules while many others refuse to accept the older types of heavy circlisions and the less pleasant-tasting malt products. Vi-Daylin, therefore, is especially adapted to administering the daily vitamin supplements to infants and children. Vi-Daylin is a stable. homogenized mixture of vitamins A and D, thiamine hydrochloride. riboflavin, ascorbic acid, and nicotinamide. It contains only traces of alcohol (not more than 0.5 percent) and one teaspsonful. 5 cc., supplies at least ficice the minimum daily requirements for infants of vitamins A and D and riboflavin, at least three times that of vitamin B₁, four times that of vitamin C, and more than the recommended daily allowance of nicotinamide. Vi-Daylia mixes readily with cereal, milk or juices but both children and adults enjoy its citrus-fruit flavor when it is given by spron as it comes from the bottle. Vi-Daylin is carefully standardized for each of the contained vitamins. It is available through prescription pharmacies everywhere in 90-cc. bottles. Arvorr Laronaronna Lisuria, Montred.



Architect . .



istan Dal

SURBEX

ABBOTT'S HIGH POTENCY VITAMIN B COMPLEX TABLETS

The Canadian Medical Association Journal

Vol. 56

March, 1947

No 3

HEART CATHETERIZATION IN THE INVESTIGATION OF CONGENITAL HEART DISEASE

Arnold L. Johnson, M.D., Delbert G. Wollin, M.D.: and Janice B. Ross, B.Sc.

Montreal, Que.

THE recent advances in the surgical correction of some congenital heart defects have made the more exact diagnosis of congenital heart disease a matter of considerable practical importance. The method of heart eatheterization, which has been used extensively by a number of workers in the study of many eardiovaseular problems, has recently been adapted to the investigation of congenital heart disease. present report is based upon the study of 17 ehildren with congenital heart disease in which this approach has been employed. The patients ranged in age from 19 months to 16 years Four were evanotic and the remainder acyanotic During the investigation, all four heart chambers were entered, as well as the pulmonary artery and its branches, and the pulmonary vems

History of the Method

Catheterization of the right heart in mon was first demonstrated to be feasible by Forssmann's in 1929, but it was not until the earcful work reported by Conrigand and Ranges" in 1941 that the possibilities of this technique were recoznired. Since then many excellent I (modynamic studies have been carried out in normal individuals " and in patients with chaoring physiological states such as should postall for rlage fainting, an early congestice fails to be d

the effect of digitalis on cardiac output and right anricular pressure

In the study of a congenital heart by this means, samples of blood are withdrawn from various parts of the heart and pulmonary tree. From a correlation of the oxygen content of the blood with the pressure exerted and the site of the catheter at the point where these observations are made, the course of the blood flow may be traced. Brannon et al.10 have reported their observations on 4 adult patients, between the ages of 32 and 68, with the elinical diagnosis of aurieular septal defect. They demonstrated that the oxygen content of blood samples withdrawn from the right auriele was greatly in excess of that found in either the inferior or superior vena eava. It was evident that blood with a higher oxygen content was being added to the right auriele, presumably by way of an auricular septal defeet

Dexter and eo-workers11 have demonstrated a more complete exploration of the heart by passing the eatheter into the pulmonary artery and its branches. In five cases of patent due to arteriosus subsequently demonstrated at or ra tion, a higher oxygen content was noted in " blood drawn from the publicant; many the from the right ventrie's. This take, for by the stie mof arternal landers of pulmonary artery from the or the conductus. In the two contents of reported calculators con co non-record primber 1 th 1 1

Studies on the notice to a like of late. a dife tom the principle of election learner and he P. Margaria's Same toler install the remaining the mental than a of the great transfer of the first of the first explice that he have been not bed to be fit in The of the fift the there the terms printed and my property of a print contained

Mittee

The providure of object is significated that described by Courier I and Ranges? The

Provide District Provide Attended to Provide Attended A

median cubital vein of either arm, or the saphenous vein in the thigh is exposed, and a ureteral type of catheter is introduced through a niek in the vein. These catheters are specially designed, with a curve in the distal end which straightens as the catheter is passed through a vein. When access to a cavity is gained, the curve is resumed. The operator thus has some control in directing the tip of the eatheter. In children, an F8 or F9 catheter has been used. The catheter is introduced under fluoroseopic vision, passing into the right auricle, right ventricle, and the pulmonary artery and its branches.

Either arm may be used, but the left is preferred. In a number of instances some difficulty occurred in directing the eatheter past the origin of the right innominate vein. If the approach is from the left side, the eatheter appeared to pass more easily along the left innominate vein into the superior vena eava.

A slow drip of physiological saline is maintained throughout the procedure to keep the lumen of the eatheter patent. Before blood samples are withdrawn, the drip is stopped and the first few e.e. of saline and blood are discarded. The necessity of disconnecting the apparatus for sampling or pressure recording is avoided by inserting a three-way stopcock between the eatheter and the infusion flask.

In the earlier eases heparin was added to the infusion fluid, 1 c.e. per litre of saline. It is now felt that an additional factor of safety is provided by heparinizing the patient at the start of the procedure and maintaining a clotting time of 10 to 20 minutes by the capillary method (normal 3 to 7 minutes) for 24 hours afterwards. A heparin curve is done the day previous to the test, and from this information the necessary dose is estimated.

Penicillin is given intramuscularly for 48 hours following the procedure, 5,000 to 10,000 units every three hours, depending on the age of the child.

The pressure is recorded by a saline manometer and a Tycos dial. The latter is connected to the catheter by a tube, half of which is filled with water and half with air. The saline manometer readings averaged 11 mm. Hg. lower than the Tycos pressures. One-third of the distance from the sternum to the back at the level of the 3rd costal cartilage is taken as the zero point. It is noted that these readings represent mean pressures inas puch as the system is not

sufficiently sensitive to record the systolic peaks and the diastolic depressions.

Blood samples for oxygen determinations are withdrawn under oil and transferred under oil into bottles containing sodium fluoride and potassium oxalate and are placed on ice and put in the refrigerator. The oxygen content is determined by the method of Van Slyke, 13 using the manometrie apparatus. With the exception of a few samples where only one determination was done, two determinations have been made on two machines by two operators, to check within 0.3 vol. %. An x-ray pieture is taken at each site from which a blood sample is withdrawn. At the eonclusion of the procedure a femoral artery puncture is done, and the oxygen consumption determined, using the Benedict-Roth apparatus,

In adult patients there has been no problem of sedation or anæsthesia, since the procedure, apart from the exposure of the vein, is not painful. With children some sedation is required to keep the patient still and, thus, in a more constant metabolic state. Table I summarizes the agents employed. Our feeling at the present time, with such experience as we have had, is that a preoperative hypodermic of morphia and seopolamine with or without nembutal by mouth, is the most desirable combination of agents.

The effect of these sedative and anæsthetic agents needs to be studied, by determining the oxygen content at one sampling site in the heart at intervals during the procedure. However, for purposes of diagnosis in this type of heart lesion it is probably not significant if the sedative agent changes the oxygen values as compared with the normal. Of the greatest importance is that it should not alter the oxygen content for the duration of the procedure.

Right heart eatheterization is generally regarded as a safe procedure. In 1945, in a symposium on "Cardiac Output" at the American Physiological Society, "Cournand was able to state that the method "has proved its safety in well over 1,200 cases, not only in ours but in the hands of a number of other investigators in England and in this country".

Surprisingly enough no arrhythmias, apart from extrasystoles, have been reported due to the stimulation of heart catheterization. In one of our cases (Case 16), a paroxysmal tachycardia had its onset after the catheter had been placed in the right auriele and apparently through the aurieular septum into the left

Table I.

Sedative and Amesthetic Agents Used in Cases of Heart Catheteria ation

Carr	Agr	Preoperative redication	Medication at start of or during procedure
1	11 year	. Nembutal gr. 3	ayan dirinda girafin araya dirinda wakafin dirinda ayanka nahadrishinda qayun, aquar go
2	12 years .	Nembutal gr. 3	
3	9 years	Nembutal gr. 3	Pentothal 825 mcm.
4	7 years .	Morphine gr. 1/36 Scopolamine gr. 1/300	I.V. morphine gr. 14 Avertin rectal drip 35° Total approx. 150 mgm.
5	11 years	Morphine gr. 1/18 Scopolamine gr. 1/200	I.V. morphine gr. 11 Avertin rectal drip 3 C Total approx. 240 mgm.
6	14 years	Morphine gr. 1/18 Scopolamine gr. 1/200 Nembutal gr. 1½	I.V. morphine gr. 1-6 Avertin rectal drip 3% Total approx. 120 mgm
7	9 years	. Morphine gr. 1/36 Scopolamine gr. 1/300 Nembutal gr. 1	I.V. morphine gr. 3-16 Avertin rectal drip 3% Total approx. 210 mgm.
8	II years	Morphine gr. 1/15 Scopolamine gr. 1/200 Nembutal gr. 1	I.V. morphine gr. 1-6 Avertin rectal drip 3% Total approx. 210 mgm
b	19 mos	Morphine gr. 1/144 Scopolamine gr. 1/600 Nembutal gr. 1/4	I.V. morphine gr. 1-24 Avertin rectal drip 3 °C Total approx. 30 mgm.
10	7 years	Morphine gr. 1/36 Scopolamine gr. 1/300 Nembutal gr. 1	I.V. morphine gr. 3-16 Avertin rectal drip 3% Total approx. 230 mgm.
11	7 years	Morphine gr. 1, 36 Scopolamine gr. 1/300 Nembutal gr. 1/2	I.V. morphine gr. 1-6 Avertin rectal drip 3% Total approx. 270 mgm.
12	3 years .	Morphine gr. 1/72 Scopolainine gr. 1/450 Nembutal gr. 34	I.V. morphine gr. 1-16 Avertin rectal drip 3 % Total approx. 120 nigm
13	9 years	Morphine gr. 1-18 Scopolamine gr. 1,200 Nembutal gr. 3	
14	16 years	Morphine gr. 1-6 Scopolamine gr. 1-200	-
15	9 years	Morphine gr. 1-24 Scopolanime gr. 1-300	_
16	15 years	Morphine gr 1-6 Scopolamine gr 1-200 Nembutal gr 1 ¹ ;	
17	14 years	Morphine gr. 1-6 Scopolarnine gr. 1-200 Nembutal gr. 1 ¹ ;	

anriele. This episode is described in some detail in a separate case study.

Furthermore, apart from occasional instances of slight thrombophlebitis of the brachial vein, no residua of frauma to endothelial linings have been described. In this respect our experience with a sickly, markedly cyanotic infant weighing 19 pounds is of importance. In this patient, with a hamoglobin of 22 mm (c. the content was introduced into the right superiors with near the introduced into the right superiors with near the introduced without apparent. The finant was hep-related for the directors of the procedure. One months following, death

organized and a community transfer to be organized three bus was teared as indirect interior very case, but a community to the right result very radial fraction of the state of the right care of modification is of ore conflict or the right care of modification.

Distriction Cons

Of the IT patients study in 9 verse and iteral to be we retrieve in septial defects? In verse of the information prevaled by earlieterization. These is see were not example. In one there

TO INCOMES BEFORE IN THE CANADA AND A REPORTED BY

was evidence of an associated interauricular septal defect, and in another, the presence of a persistent left superior vena cava was demonstrated.*

The evidence for the presence of a ventricular septal defect is arterialized blood in the right ventricle, or blood with a significantly higher oxygen content than that found in the right auricle. Cournand et al.3 found that blood from the right auricle and the right ventricle, near the tricuspid valve in each instance, varied 0.3 vol. % or less. in 19 of 22 subjects without congenital lesions, and in only one instance was the difference greater than 1.0 vol. %. Whether or not blood with an oxygen value equal to that of arterial blood will be found in the right ventricle in the presence of a ventricular septal defect, will depend upon the position of the catheter tip at the time of sampling, and upon the size of the defect. The following illustrative case is presented.

Case 10 is that of an acyanotic boy of seven, with some limitation of exercise tolerance. There was a

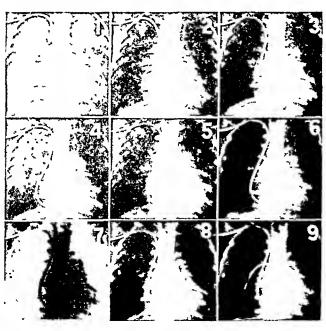


Plate 1. Case 10

		Pressure mm. Hg.
Fig. 1.—Superior vena cava	10.0	8
Fig. 2.—Upper right auricle.	10.4	10
Fig. 3.—Mid right auricle	10.6	10
Fig. 4.—Mid right ventricle	13.3	42
Fig. 5.—Upper right ventricle	11.0	36
Fig. 6.—Mid right ventricle	10.3	26
Fig. 7.—Main pulmonary artery	11.9	45
Fig. S.—Right pulmonary artery	11.5	50
Fig. 9.—Right pulmonary artery.	11.5	50
Femoral artery	13.4	

^{*} This case is considered in detail in a separate report.

rough systolic murmur of moderate intensity maximal in the 3rd and 4th left interspaces near the sternum, associated with a thrill. Blood pressure 110/60, Hb. 11.7 gm. %. On fluoroscopic examination the heart was enlarged; the pulmouary conus area was prominent; there were increased vascular markings in the lung fields and there was questionable intrapulmonary vascular The electrocardiogram was within normal limits. In the table beneath the x-ray pictures, it will be seen that the oxygen values in the superior vena cara and the right auricle were between 10.0 and 10.6 vol. 7c. In the right ventricle, the oxygen content varied between 10.3 and 13.3 vol. %. The latter figure is arterial blood, containing the same amount of oxygen as the femoral artery sample (13.4 vol. %). Arterialized blood must be entering the right ventricle, presumably through a defect in the ventricular septum. The right ventricle was demonstrated to be a large chamber, a finding which is particularly apparent in Plate 1. Fig. 6.

Case 6 is a boy of 14 in which the catheter was passed through a ventricular septal defect into the left ventricle. This patient, with marked evanosis and clubbing, had a very limited exercise tolerance. There was a harsh systolic murmur of moderate intensity, maximal in the 3rd left interspace uear the sternum. Hb. was 21 gm. %. The fluoroscopic examination demonstrated au unusually large aorta and an unusually small pulmonary artery, without enlargement of the heart. The electrocardiogram showed a marked right axis deviation.

In this instance the catheter was passed into the right auricle and through the tricuspid valve into the right ventricle, but it could not be made to enter the pulmonary artery. At a point in the upper part of the right ventricle it was seen to follow the course pictured in Plate 2, Figs. 5 and 6. Under fluoroscopy it was thought that the left ventricle had been entered, and this conjecture was supported by the oxygen content of 25.3 vol. % as compared with a value of 17.3 vol. % in the right ventricle. It is unlikely that blood was flowing from left to right ventricle because of the similar oxygen values in the right auricle and the right ventricle. mixture of venous and arterial blood in this case presumably occurs in the aorta, i.e., due to over-riding. That such may be the case is suggested further by the similarity in the pressure findings in each ventricle, indicating that each may be in communication with the arterial outflow tract.

There is one example of a patent ductus arteriosus in this series.

An acyanotic well-developed boy of 11 years (Case 1) with slight restriction of strenuous activity due to dyspnæa, had a continuous machinery-like murmur maximal in the pulmonary area. Blood pressure 100/30->0. The fluoroscopic examination revealed a prominent, active pulmonary conus area in a heart of normal size, and the aorta appeared smaller than normal. The electrocardiogram was within normal limits. The oxygen content in the right pulmonary artery, Plate 3, Fig. 1, was 12.9 vol. %, which was 1.2 vol. % higher than that found in the upper right ventricle, (Fig. 2). This is regarded as a significant oxygen difference at these two sites. Dexter, et al.11 consider 0.6 vol. % to be the maximal difference between right ventricle and pulmonary artery in normal subjects.

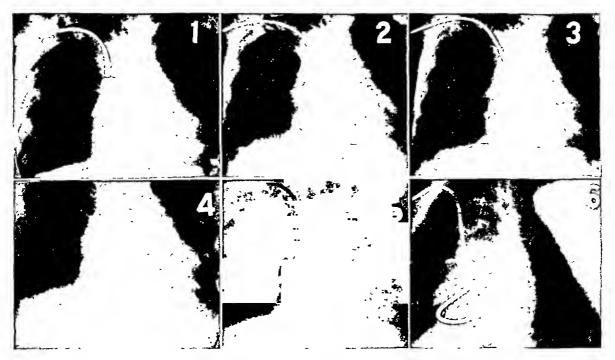


Plate 2. Case 6

	Oxygen content vol. % n	Pressure			Pressure mm. Hg.
Fig. 1.—Superior vena cava Fig. 2.—Upper right auricle Fig. 3.—Lower right auricle	17.1 17.0 17.0	18 18 22	Fig. 4.—Upper right ventricle Fig. 5.—Left ventricle—A.P Fig. 6.—Left ventricle—(left ant. obl.)	17.3 25.3	56 64 ••

At operation, Dr. Dudley E. Ross ligated a large ductus with the subsequent disappearance of signs and symptoms.



Plate 3. Case 1

	Oxygen content vol. %
Fig. 1—Right pulmonary artery	12.9
Fig. 2.—Upper right ventricle	11.7

There are two eases which demonstrate an aurienlar septal defect with a flow of blood from left to right auriele. The existence of such a flow is deduced from the presence in the right auriele of blood with an oxygen content higher than that entering it from the venæ eavæ. In each of these cases the left auriele has apparently been entered by the eatheter.

A boy of 9 years (Case 18) complained of moderate limitation of activity because of dyspnæa. He was not cyanotic ordinarily, but the parents noted slight blueness of lips and fingernails occasionally following exertion. On physical examination there was a systolic murmur of moderate intensity, maximal in 2nd and 3rd left interspaces near the sternum, with an early, slight diastolic blow in the same area. The pulmonic second sound was accentuated. Blood pressure 110/70; Hb. 12.3 gm. %. Fluoroscopic examination showed the heart to be enlarged, with a very prominent and active pulmonary conus region. The aortic arch was smaller than normal; there was marked intrapulmonary pulsation of the pulmonary vessels. The electrocardiogram showed a right axis deviation and a QRS time of 0.11 sec.

The catheter onee having gained the right anriele would then follow one of two routes. It was introduced either into the right ventriele through the tricuspid valve, or it was passed through the aurieular septum into the left auriele and into a pulmonary vein. The x-rays, (Plate 4, Figs. 1 to 8) show the course of the eatheter in this latter route. In Figs. 6, 7 and 8, the catheter is beyond the heart shadow. From the data in the table below the photographs, it will be seen that there is a difference of 3.4 vol. % in the oxygen content between the superior vena cava and the right anriele. Despite the omission of a sample from the

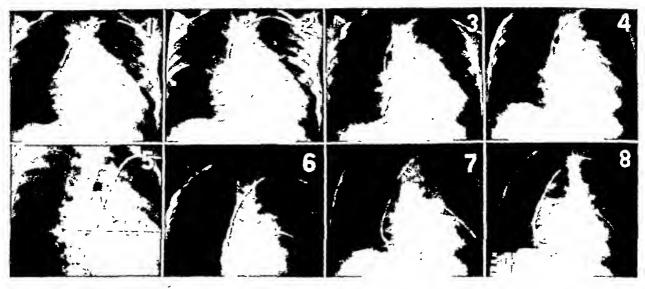


Plate 4. Case 13

(Oxygen content vol. %	Pressure mm. Hq.		Oxygen content vol. %	Pressure mm. Hg.
Fig. 1.—Superior vena cava	10.5	18	Fig. 5.—Left auricle (right ant. obl.).	••	
Fig. 2.—Upper right auricle	13.9	18	Fig. 6.—Pulmonary vein	15.7	26
Fig. 3.—Lower right auricle	13.3		Fig. 7.—Pulmonary vein	16.1	29
Fig. 4.—Left auricle	157	20	Fig. 8.—Pulmonary vein (left ant. obl.)	••	

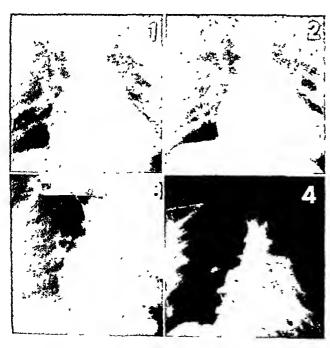


Plate 5. Case 16

		Oxygen content vol. %	Pressur mm. Hg
Fig. 1.—Superior vena cava		9.7	22
Fig. 2.—Mid right auricle		15.6	
Fig. 3.—Inferior vena cava.		11.2	22
Fig. 4.—Left auricle	-	$16.9_{\ }$	20
Fig. 4.—Left auricle .	٠.		

inferior vena cava, it is thought that this finding is evidence for a flow of blood from left to right auricle through a defect in the auricular septum traversed by the catheter. Arterialized blood was found in the pulmonary vein and in the left auricle.

The second case* of auricular septal defect was found in an acyanotic girl of 15 without symptoms. On physical examination there was a systolic murmur of moderate intensity maximal in the 2nd and 3rd left interspaces near the sternum. On fluoroscopic examination, the heart was enlarged, particularly the right ventricle. There was marked prominence of the pulmonary conus area and a hectic pulsation of the pulmonary artery. There was a questionable pulsation of the intrapulmonary vessels. The aortic arch appeared to be smaller than normal. The electrocardiogram showed right axis deviation.

The catheter was easily introduced into the right auricle. A loop then passed through the tricuspid valve, as shown in Plate 5. Fig. 4. but the course of the tip was to the left and slightly upwards. The oxygen value at this point was 16.9 vol. %. The superior and

^{*}Referred for study from the Cardiac Clinic of the Jewish General Hospital, Montreal, by Dr. Harold N. Segall.

inferior vena caval blood had an oxygen content of 9.7 and 11.2 vol. % respectively, as compared with 15.6 vol. % in the lower right auricle. It was apparent from these data that arterialized blood must be entering the right auricle. The tip of the catheter probably lies in the left auricle in Fig. 4 in view of the high oxygen content at that point. This finding was not investigated further in view of the onset of a paroxysmal tachycardia when the catheter was in this position. A blood pressure drop to 70/50 occurred and the paroxysm continued for two hours when it ceased spontaneously. The electrocardiograms may be interpreted as either a paroxysmal auricular tachycardia or as a paroxysm of 1-to-1 flutter. The onset of such an arrhythmia during catheterization has not previously been reported. The patient gave no history to suggest episodes of tachycardia.

In the course of this study, it was observed, during the placing of the catheter under fluoroscopic vision, that an excellent estimate of the size of the right ventricle could be made. An illustration of the catheter tip outlining the right ventricular wall is shown in Fig. 9. Case 10. In some instances where the catheter was curled up in the right auricle, it was thought that a good approximation of the size of this chamber could also be made. The movements of the catheter tip were much more vigorous in the right ventricle than in the right auricle: and in the pulmonary artery there was a characteristic motion of the catheter in the longitudinal axis of the vessel.

The tricuspid valve was entered at a level between thoracic 7 and 10. The surprising extent to which the valve was stretched was noted particularly when withdrawing the catheter from the right pulmonary artery. The main fulcrum of the tension of withdrawal was at the upper edge of the valve.

Conclusion

The method of heart catheterization, in our limited experience and according to the few reported cases in the literature, appears to be a most useful adjunct in the investigation of congenital heart disease.

We wish to acknowledge our indebtedness to Dr. Lewis Dexter, Peter Bent Brigham Hospital, Boston and Dr. André Cournand, Bellevue Hospital, New York, for their advice. We appreciate the assistance given by members of the staff of the Departments of Radiology. Anæsthesia and Hæmatology and of the Operating Room, of the Children's Memorial Hospital.

REFERENCES

- FORSSMAN, W.: Klin. Wchuschr., 8: 2085, 1929.
 COURNAND, A. AND RANGES, H. A.: Proc. Soc. Exp. Biol. & Med., 46: 462, 1941.
 COURNAND, A., RILEY, R. L., BREED, E. S., BALDWIN, E. AND RICHARDS, D. W. JR.: J. Clin. Invest., 24: 10:15.

- 106, 1945.
 4. Stead, E. A. Jr., Warren, J. V., Merrill, A. J. and Brannon, E. S.: J. Clin. Invest., 24: 326, 1945.
 5. McMichael, J. and Sharpey-Schaefer, E. P.: Brit. Heart J., 6: 33, 1944.
 6. Cournand, A. Riley, R. L., Bradley, S. E., Breed, E. S., Noble, R. P., Lauson, H. D., Gregerson, M. l. and Richards, D. W.: Surgery, 13: 964, 1943.
 7. Barcroft, H., Edholm, O. G., McMichael, J. and Sharpey-Schaefer, E. P.: The Lancet, 246: 489, 1944.

- 1944.
 BRANNON, E. S., MERRILL, A. J., WARREN, J. V. AND STEAD, E. A. JR.: J. Clin. Invest., 24: 332, 1945.
 MCMICHAEL, J. AND SHARPEY-SCHAEFER, E. P.: Quart. J. Med., 13: 123, 1944.
 BRANNON, E. S., WEENS, H. S. AND WARREN, J. V.: Am. J. Med. Sc., 210: 480, 1945.
 DENTER, L., BURWELL, C. S., HAYNES, F. W. AND SEIBEL, R. E.: Bull. New Eng. Med Center, 8: 113, 1946.
- BALDWIN, E. DEF., More, L. V. AND NOBLE, R. P.: Am. Heart J., 32: 152, 1946.
 PETERS, J. P. AND VAN SLYKE, D. D.: Quantitative Clinical Chemistry, Vol. 2. Methods, Williams & Wilkins Co.. Baltimore, p. 324, 1931.
 Am. Physiol. Soc. Federation Proc., 4: 183, 1945.

SOME OBSERVATIONS ON NASAL CILIA*

G. Edward Tremble, M.D., D.L.O. (Eng.),

F.R.C.S.[C.]

DURING the past twenty-five years, knowledge of the physiology of the nose has been greatly increased and the accumulation of this knowledge has changed entirely our mode of treatment in masal infections.

A brief anatomical review will help to clarify the picture. The nose is made up of two fairly rigid channels about three to three and a half inches in length beginning at the nostril and ending posteriorly in the nasopharynx. The septum or partition between these two channels as a rule has deflections or ridges varying in degree even in healthy noses. The lateral wall has three rounded bodies or turbinates running from before backward and According to their parallel to one another. location, the sinuses are named the antrum, frontal, ethmoid and sphenoid. These large cavities empty into the nose by small openings or ostia under the lower edge of the middle and superior turbinates. The sphenoid is the exception and opens into the space just above and behind the superior turbinate. The whole nasal mucous membrane, including the anterior ends of the inferior and middle turbinates, is completely covered with cilia with the exception of the olfactory area. These ciliated cells rest on a basement mem-

^{*} Presented at the McGill Reporting Society, October 8, 1946.

brane and extend through the entire layer of epithelium ending on the surface in the eilia. In humans, nasal eilia are about 7 microns in length, that is, slightly larger than a red eorpusele and the space between each cilium is approximately equal to its own diameter. These microseopic hairs are packed tightly together like the pile in a rug and extend from just inside the nostril to the level of the Eustachian tube. Below this area the epithelium is squamous.

Although we have learned a great deal about eilia in the past two decades, we are apt to forget that their presence and motion were observed over a century ago. In 1830, Sharpey's described extensive studies he carried out on eiliary activity. He gave credit to Purkinje and Valentin's who first mentioned the movement of cilia in mammals. They carefully noted the motion of cilia:

"On the mucous membrane of the nose and its sinuses, and that of the Eustachian tube, also on the lining membrane of the lower part of the larynx, the trachea, and bronchial tubes, extending to their smallest divisions capable of examination. No trace of it can be found in the glottis, nor in the mouth and pharynx."

By means of powdered charcoal injected into the nose and sinuses of rabbits, Sharpey studied, the pathways of ciliary activity.

"On breaking open the maxillary sinus and trying its lining membrane in the same way, the impulsion seemed to be directed towards the back of the cavity, where its opening is situated. By the same means I traced the direction in the windpipe of a young dog a few days old; the impulsion was best marked on the posterior part of the tube, and there it was obviously directed towards the larynx. ''

Many of Sharpey's eareful observations have only recently been corroborated. For instance, he noted that eilia were tough, hardy structures that kept on beating long after death of the animal. He observed the effective and slower recovery stroke of cilia and also measured their length. He also described the effect of drugs on ciliated mucous membrane. In part he said, "Acid, alkaline, and saline solutions, when concentrated, arrest the motion instantanceously; dilution to a degree varying in differing substances, prevents this effect altogether, and a lesser degree of dilution delays it". Among the solutions he used were alcohol, quinine, ether, atropine and morphine.

In 1924, Yates⁴ injected a solution of dye into the various sinuses and mapped out the tracks down into the pharynx. He found that the solution followed definite pathways due to

the action of the cilia running downward and backward. From the antrum, frontal sinus and anterior ethmoid cells, the dye emerged under the posterior tip of the middle turbinate and streamed down in front of the Eustaehian tube. Here it was joined by a stream from the posterior ethnoid eells which appeared from the ostia under the superior turbinate. lowed down to the level of the soft palate where it united with a smaller stream from the posterior ethmoid eells which went behind the Eustachian cushion. The combined tracks continued down the posterior pharyngeal wall just medial to the posterior pillar of the tonsil. The stream from the sphenoid ostium 'followed a constant path down the posterior pharyngeal wall well behind the Eustaehian cushion and joined the combined streams from the other sinuses about half an ineh below the lower margin of the soft palate.

CILIARY MOVEMENTS

The motion of the cilia is whip-like, with a quick effective stroke in the direction of the flow of the overlying mucus and a slower recovery stroke in the opposite direction. When seen in profile, eilia appear to beat in sequence, forming waves which have been eompared to a field of waving grain as the wind passes over it. In a localized wave no two eilia arc in exactly the same phase at the same time. Viewed from above small groups seem to work in unison while others rest. They move to and fro at the rate of 5 to 12 eyeles a second but the mechanism which stimulates these hair eells Whether the wave-like is undetermined.5 motion is controlled by the sympathetic or autonomie system or whether biochemical changes in the eell protoplasm are responsible is not known.

According to Hilding⁷ the anterior third of the nose shows very little eiliary movement, while the posterior two-thirds shows active motion. On the inactive area anteriorly which includes the anterior ends of the inferior and middle turbinates drops of India ink move downward and backward very slowly at the rate of only a few millimetres an hour into the middle and inferior meatuses (Figs. 1 and 2). In the active area just behind the anterior ends of the inferior and middle turbinates to the Eustachian tube the movement is much more rapid. Moving at a speed of 4 to 6 mm. per minute, foreign partieles reach the level of the

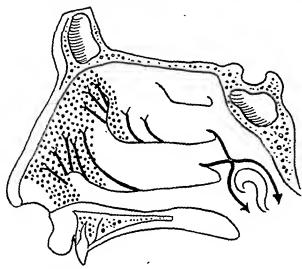


Fig. 1.—The direction of the flow of mucus over the non-ciliated surface in the anterior portion of the nose. The stippled area is non-ciliated and inactive.

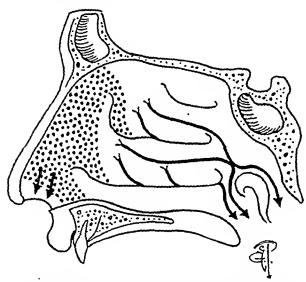


Fig. 2.—The direction of the flow of mucus over the ciliated surface on the lateral wall of the nose. The non-stippled area posteriorly is ciliated and active. (Modified after Hilding).

opening of the Eustachian tube in 4 to 10 minutes.

Ciliary movement is greatest in the meatuses and particles from the anterior inactive area gather speed as they reach these parts. In the same way the anterior third of the septum is inactive and movement is 4 to 6 mm. an hour while in the posterior two-thirds it is the same as on the lateral wall, 4 to 10 mm. per minute.

LAYER OF MUCUS

Overlying the tips of the cilia but not touching the cells beneath is the thin, transparent continuous sheet of mucus which keeps moving

toward the back of the nose. This layer of mucus which extends from the deepest recess of each sinus converges at the ostium and then streams over the lateral wall of the nose in definite pathways to reach the nasopharynx.

As it moves along, this thin film of mucus, which has been compared to a conveyor belt, is being constantly replaced from the mucous and serous glands of the nasal mucosa. This protective coating carries away foreign particles and bacteria which have passed the vibrissæ just inside the entrance of the nostril. For this reason the deeper recesses of the nose are often sterile on culture. Normal mucus is thin, invisible and very elastic so that it can be stretched considerably before it breaks away. It varies in consistency but is made up of about three parts mucin, two parts salt and ninety-five parts water.

There is then a completely new sheet of mucus over the anterior inactive area every hour or two and a new layer of mucus over the posterior two-thirds about every 10 minutes. When the film of mucus reaches the Eustachian tube it is helped along by the act of swallowing, by traction and slightly by gravity until it is swallowed or cleared away by coughing.

From the foregoing statements, it would appear that an abundance of healthy mucus would go a long way in relieving excessive dryness in the nose and clearing away infection. Whether this can be done by stimulating the mucus-secreting glands or by supplying the necessary mucin locally remains to be proved.

METHODS OF FOLLOWING CILIARY MOVEMENTS

Many of the observations that have been mentioned can easily be demonstrated by means of animal charcoal or lamp black. Dotted or sprayed in the nose, these innocuous substances can be followed with the aid of the nasopharyngoscope as they are carried along by the cilia. After experimenting with various powders and solutions a mixture of powdered carmine 90% and di-sodium phosphate 10% was found satisfactory. This finely ground, odourless powder is quite harmless, it does not clump, it is not objectionable to the patient and its brilliant red colour is easily seen in the dark recesses at the back of the nosc. By means of a malleable cannula fitted to an ordinary DeVilbiss atomizer bulb, it is a simple matter to blow a little of the carmine and disodium phosphate powder into any desired area of the nose and study its progress to the nasopharynx. It was found that a little cup or funnel connected to the end near the bulb was a great asset in holding the powder as the head could then be held in an upright position.

Hundreds of eases have been studied in this way by blowing the powder on to various spots of the septum and on the lateral wall, as well as by using a solution of the red mixture in all the sinuses under varying conditions. Yates mentioned that solution injected into a normal antrum appeared in the nasopharyux in about two minutes. Normal sinuses were injected, also those in which subacute sinusitis was prescut and after the infection had subsided. Patients suffering from chronic sinusitis with and with-Also those with out polypi were examined. vasomotor rhinitis and seasonal hay fever were carefully studied and the eiliary movement recorded.

CILIARY PATHWAYS

Two imporant points should be mentioned, (a) that after removing completely the lining mueous membrane from a patient's sinus, normal appearing and normal functioning mueosa complete with eilia regenerates in about five months; 10 and (b) that eilia beating rigorously are frequently found in eases of chronic sinusitis and even when bathed in pus. 11

Ciliary pathways themselves are very definite apart from slight variations. For instance, a little of the red powder blown into the middle meatus of a normal nose can easily be seen in the post-nasal mirror within a few minutes. In about five minutes a definite stream shows in the pharynx just medial to the posterior pillar. The powder tracks down from under the posterior tip of the middle turbinate in front of the Eustachian tube and although most of it runs down the lateral pharyngeal wall, traces of the powder spread over the surface of the tonsil. This might easily explain a continued low grade tonsillitis.

On injecting a little powder into an antrum after an infection has subsided, the powder can be seen in the nasopharynx within a few minutes. By this means, we can assume that the mueous membrane has returned to normal. Even in the presence of chronic infection in an antrum, the earmine powder mixes freely with fluid pus and often appears at the level of the

Eustachian tube in 5 to 10 minutes. In cases where pus is thick and curdy, it moves away more slowly and sometimes takes half an hour to appear behind the soft palate. this delayed action is due to the extra load embarrassing eiliary action or to the eilia being injured or destroyed in eertain areas, remains to be shown. On several occasions a little powder has been blown into an antrum just previous to a radical operation and the path. ways noted on opening the antrum. The drainage is invariably in a spiral direction toward the ostium even in the presence of polypoidal thickening and free pus. In a number of eases of sphenoiditis with pus emerging from the ostium, carmine powder injected into the sphenoid streamed out easily with the pus and showed at the Eustachian tube level within 5 to 10 minutes.

Powder sprayed into the nose over a marked deflection of the septum tends to remain for half an hour or more. It is sometimes an hour before the eonvex surface is free of powder, due to degeneration of the eilia. The inspired air drying the septum aggravates the condition. The same condition holds true for ridges and spurs on the septum. Over the anterior exposed areas eiliary streaming is delayed, while on the protected under surface where the eilia are intact and active, the powder moves downward and backward more quickly.

During the hay fever season a great many cases have been examined in this way and the following facts noted. An allergie condition itself does not interfere with eiliary move-The pale, boggy, water-logged tissue carries the powder away from the inactive and active areas in a similar way to that mentioned for normal mueous membrane, except where there is an execss of watery mueus present. In these eases, even in the active areas, thin streaks appear but they often remain and sometimes move only a few millimetres in half an hour in the "stagnant" watery secretion. On the other hand, if the mueus has the proper viseosity, it moves along at the normal rate. In chronic ethmoiditis with polypi present, powder blown on to the anterior surface of polypi remains for a long time. This is again due to the disappearance of the eilia from the anterior exposed surface while on the posterior protected surface of the polypi, the powder drains away more freely.

EFFECTS OF MEDICATION ON CILIA

For some years now it has been known that certain drugs are harmful to the nasal mucous membrane. Many preparations used empirically in oily solutions by spray or dropper have been found to interfere with the action of the cilia. Menthol, camphor, thymol, and oil of eucalyptus,s to mention a few, tend to injure the mucous lining when used over long periods.9 As a result, mild shrinking agents which are isotonic, slightly acid, and do not interfere with ciliary streaming would seem most satisfactory from a physiological standpoint.

CONCLUSIONS

These findings suggest that an abundant supply of healthy mucus in the nose is more helpful than strong nasal medication. it seems reasonable to assume that we should strive to eliminate pathogenic organisms, it is important to remember the normal protective In short, our aim mechanism of the nose. should be to preserve the natural defences of the nose by ventilation and drainage but it is also necessary to have the proper amount of moisture present, so that normal ciliary action is not impaired.

REFERENCES

- Lucas, A.: In Cowdry, E. V., Special Cytology, 2nd ed., p. 409, Hoeber, 1932.
- 2. SHARPEY, W.: Edin. Med. & Surg. J., 34, 1830.
- 3. Pubkinje, J. E. and Valentin, G.: Muller, Archiv. fur Anatomie, 1834.
- YATES, A. L.: J. Laryngol. & Otolaryngol., 39: 554, 1924.
- 5. HILDING, A.: Ann. Int. Med., 6: 227, 1932.
- Arnold, L., Ostrom, M. L. and Singer, C. L.: Proc. Exper. Biol. & Med., 25: 624, 1928.
 Hilding, A.: I. Arch. Otolaryngol., 92, 1932.

- 8. Fox, N.: Arch. Otolaryngol., 11: 48, 1930.
 9. Lierle, D. M. and Moore, P. M.: Arch. Otolaryngol., 19: 55, 1934.
- 10. GORHAM, C. B. AND BACHER, J. A.: Arch. Otolaryngol., 11: 763, 1930.
- 11. Proetz, A. W.: J. Laryngol. & Otolaryngol., 49: 557,
- 12. ORNSTON, D. G.: Arch. Otolaryngol., 44: 19, 1946.
- 1390 Sherbrooke St. W.

RÉSUMÉ

L'appareil nasal est normalement pourva de défenses naturelles qu'il faut respecter. Sans nier les bienfaits de la médication moderne, il ne faut pas ignorer le rôle que jouent les vibrisses et le mucus nasal et il importe de conserver au cours des infections nasales le fonctionnement aussi parfait que possible de ces agents défensifs de première importance. En somme, en même temps que l'on songera à la médication indiquée, on veillera également à assurer le drainage des sécrétions, normales et pathologiques, et à maintenir les vibrisses au degré d'humidité qui soit compatible avec leur bon fonctionnement.

JEAN SAUCIER

A NEW METHOD OF URETEROINTESTINAL ANASTOMOSIS PRIOR TO TOTAL CYSTECTOMY FOR CARCINOMA OF THE BLADDER

R. H. Flocks, M.D.

-Associate Professor of Trology, University of Iowa School of Medicine, Iowa City, Iowa

HINMAN, and Hinman and Weyrauch. in a complete review of the subject of ureterointestinal anastomosis up to 1939, found that more than 6 different techniques had been used in approximately 1,000 cases. Hinman divided the procedures into four groups: (1) those utilizing the intact orifice: (2) those employing the "muscularizing" principle; (3) those using the submucosal principle (after Coffey): and (4) those in which the urefer is kept intact. An analysis of the mortality in these cases. excluding those in group (4) in which the number was very small, showed an over-all mortality of 31%. The death rate was 21% in those in whom the operation was performed for benign lesions, and 52% in those in whom cancer was present. The results were best, but not greatly different from the average, in those cases in which Coffey's methods, or some modification of it, was used. This clinical review, in addition to an experimental study of 170 ureteroentrostomies in dogs and a review of his own cases done by modification of Coffey's No. 1 method. led him to the following conclusions:

"The processes of restoration of an orifice and of repair of the surgical approach to it largely determine the result of ureterointestinal infixion. Changes in the ureter have the greatest significance in these processes. The control of the destiny of the end of the ureter in the head and hand of the surgeon would more than half solve the problem. What are the changes in the ureter? The new urinary meatus is formed by nature. Nature's orifice results only after the end in excess has sloughed off, or after healing by granulation of the side-to-side intercommunication, beyond surgical control in either case. The sloughing off of the end in excess is determined by the extent of endarteritis and anæmic necrosis, differing by inevitable infection from the similar fate of ureteral redundancy in ureterovesical reimplantation. Leaving the end which hangs redundant long or short makes no difference in the results. Almost invariably the restored orifice will be found in a papilla and always inflammatory if examined early. Occasionally massive necrosis of the ureter ran up two or more inches above the place of snrgical infixion breaking the anastomosis and causing peritonitis."

In an experimental evaluation of Coffey's method, Vermooten showed that a conspicuous cause of failure was the occurrence of a large periureteral exudate surrounding the imbedded portion of the ureter which either caused complete breakdown of the anastomosis or resulted in excessive scar tissue formation, producing mechanical ureteral obstruction. He felt that this exudate was due to infection from bowel contents.

A review of the literature and our own clinical experience with the techniques of Coffey and their modifications showed that two difficulties were encountered: (1) peritonitis; and (2) changes in the region of the anastomosis which initiated ureteral obstruction and infec-The causes of peritonitis were of two different types: (1) technical errors associated with fistula formation and leakage, and (2) break-down in the region of the anastomosis, with fistula formation which did not seem to be associated with any technical error. dangers of peritonitis could be avoided to a great extent by extraperitonealizing the region of the anastomosis after the method of Mayo. The second difficulty, break-down in the region of the anastomosis, local infection, and ureteral obstruction could not be avoided with certainty by extraperitonealization, careful pre- and postoperative care of the bowel, or the judicious use of the newer chemotherapeutic agents.

In reviewing the literature especially the recent work of Jewett, and the reports of cases in which treatment was given by means of the fourth principle, the intact ureter, one is struck by the fact that in the successful cases the percentage of beautifully healed anastomoses is high and the late results are good. This was true in our experience. Why is this? parently by the use of the intact ureter healing of the anastomosis is good, with little periureteral fibrosis as a result of previous acute inflammatory reaction. Later communication with the bowel brought little difficulty and an excellently functioning anastomosis. Jewett, Ferguson, Higgins, and others, who have used the method of the intact ureter have attributed this to the fact that there is no communication with the bowel during the time of healing between the ureter and the adjacent bowel, so that no organisms could creep into this bed and produce the inflammatory exudate Vermooten has described in his experimental anastomoscs on dogs. However, in the literature, in Hinman's experience and in my own experience, urinary tract infection and ureteral obstruction occurred not infrequently, even though the intact ureter was used and the

anastomosis was made later by a technique similar to Jewett's. This is probably due, as Jewett emphasizes, to kinks, surgical ædema, etc., but these seem to occur even with the most careful technique, and when they do, they are serious and require either nephreetomy or drainage of the ureter above the region of the anastomosis. Morcover, the second stage of the procedure in which a communication between the ureteral lumen and the bowel is formed, has been performed differently by many individuals and presents many problems.

Higgins, who first performed this type of operation clinically, used the method of the sloughing suture. In our experience, this has been unsatisfactory in that the amount of slough, the time of slough, the kinds of orifices that it produced, are all uncertainties and if the wreter happens to be blocked by surgical ædema or kinking, one cannot make the communication immediately. Stricture formation has also been described following this procedure. The method of Jewett is excellent except that the second surgical procedure needs excellent exposure, which the formation of adhesions after the primary operation makes difficult. manipulation incident to obtaining the necessary exposure may tear down the anastomosis between the walls of the ureter and sigmoid Could such a secondary procedure be colon. avoided?

Thus the use of the principle of the intact ureter seemed to be the method of choice. It presented, however, certain technical problems: (1) burying the intact ureter was frequently associated with severe obstruction and infection, and (2) the production of a communication between the ureter and bowel at the second stage was difficult, and at times uncertain. Two major procedures were necessary for the consummation of the anastomosis.

Because local infection and ureteral slough occurred in all methods not using the intact ureter, even with careful bowel asepsis, careful placing of sutures, and avoidance of contamination, and the occurrence was uncertain but more frequent in older individuals than in children with extrophy, I postulated that the prime cause of this was not the infection spreading into the ureteral bed from the bowel but ureteral slough due to the disturbance of the ureteral blood supply, when this is cut across. When the ureter is buried in the wall of the colon, at first the blood supply must be

obtained from the outside through the wall of the ureter. If the ureter is intact, blood may enter from above and below. If the ureter has been cut across, blood may enter only from the proximal portion (Fig. 1). Slight ædema causing pressure may so deplete the blood supply that although slough due to this only did not occur, resistance to infecting organisms is greatly reduced and the combination of ædema and infection excludes any possibility for control of the destiny of the end of the ureter.



Fig. 1.—X-ray photograph of the bladder and ureter following the injection of the inferior vesical artery with a barium mixture. Note that the arteries of the lower three-fourths of the ureter are thus injected. A good deal of the blood supply to the ureter comes from below.

Assuming, therefore, that the importance of the principle of the intact ureter is not primarily a question of contamination of the ureteral bed with organisms, but rather the maintenance of adequate ureteral blood supply, I have devised a technique (illustrated in the diagrams) which creates the anastomosis in the first stage, leaves the ureter intact so that the blood supply to the region of the anastomosis is maintained, and drains the proximal ureter by means of a small ureteral catheter. This procedure, as contrasted with other techniques, has these advantages: first, by the use of the almost intact ureter it maintains blood supply to the region of the anatomosis; second, by creating immediately an anastomosis around the urcteral catheter the danger of ureteral obstruction due to surgical ædema or kinking is obviated and in the operations thus far performed, no evidence of severe, immediate obstruction or infection has occurred. The temperature curve of every one of these patients has shown

practically no deviation from the normal; third, because the anastomosis is completed in the first stage, no second operation of great magnitude is necessary and the technical problem of avoiding adhesions or freeing the region of the anastomosis, in the face of adhesions, with the dangers of tearing and destroying the new blood supply which has been created for the region of the anastomosis, is abolished. The second operation is done extraperitoneally, away from the region of the anastomosis and is a very minor one.

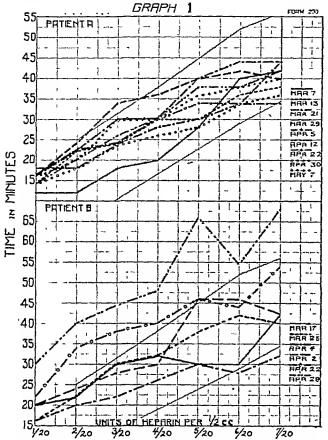
In my hands the operation has proved satisfactory in the eight patients treated since July, 1945. No deaths due to the operation have occurred. The postoperative convalesence has been remarkably smooth and the postoperative intravenous pyelograms have shown very few changes. It is too early to say anything about later changes in the urinary tract, but from the appearance of the pyelograms and the course of the patients, it would seem that these will not be extensive.

METHOD

The method is as follows: A suprapubic incision is made and the abdominal cavity entered. The region of the sigmoid colon and the lower portion of the ureters is exposed, the parietal peritoneum is incised and the intact ureters are freed by blunt dissection. They are then buried in adjacent portions of the sigmoid colon, as illustrated in Figs. 2 and 3, after a communication is made at the midpoint of the anastomosis, through which a ureteral catheter is passed down a rectal tube so that it can be pulled out and sutured to the anus. This can later be irrigated and removed at will. ureter is buried submucosally with interrupted silk sutures. The region of the anastomosis is extraperitonealized by suturing the parietal peritoneum over it with interrupted black silk sutures. A heavy steel or silk suture is placed, untied, around the portion of the ureter emerging from the anastomosis and is brought out through a stab wound near the anterior superior iliac spine, extraperitoneally and adjacent to a pack or rubber tube which keeps this region open.

After a similar procedure is carried out on the opposite side, the midline incision is closed in the usual manner without drainage. The ureteral catheters are kept draining easily and, if they clog, the urine appears promptly in the this means the time of carrying out the test was reduced on the average to about one-half to three-quarters of an hour.

Despite the utmost care in technique irregular curves were obtained in 26 of 62 tests. In general this was more noticeable in the more concentrated solutions of heparin, as is well illustrated in Graph 1 (Patient B). In this



The continuous light line represents the limits of normal, as described by Waugh and Ruddick.

graph six weekly Waugh-Ruddick curves on one patient have been plotted. It may be seen that the curves are grossly irregular in the right half of the graph (higher concentrations of heparin). This variability is also noted in some of the curves published by Waugh and Ruddick.²

In Graph 1 (Patient A) nine weekly Waugh-Ruddick curves done on one patient are represented. It will be seen that the curves of Patient A vary up and down from week to week in no predictable manner but tend to remain within the limits of normal.

Interpretation. — In their two published reports Waugh and Ruddick found that the blood of the majority of patients confined to bed for any reason exhibited a gradually increasing tendency to clot, with a gradual return towards the normal when such patients were once more

up and about. Such a test might prove of value in sorting out those individuals likely to develop further thrombotic, and later embolic complications, and perhaps throw some light upon factors concerned in the development of coronary occlusion. In our series of 15 cases, 7 exhibited a normal response on admission, 7 showed a tendency to clot and one patient revealed an actual decreased clotting tendency as shown in Table I. In addition, only 2 of the 15 cases showed a subsequent fall in the curve after being confined to bed.

Table I.

Fifteen Cases of Coronary Occlusion
Values of Waugh-Ruddick Curves on Admission

	Controls	Treated cases
Number of cases		6
Number low on admission	. 5	2
Number normal on admission	. 4	3
Number high on admission	. 0	1

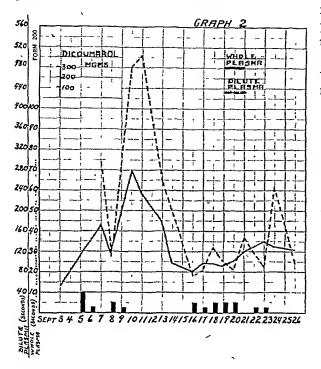
Judged on the basis of the Waugh-Ruddick test, slightly less than half the patients suffering from coronary occlusion show a clotting tendency at the time of admission.

The above findings are at variance with those of Ogura³ who found that the Waugh-Ruddick test showed an accelerated clotting time by the 2nd or 3rd day of disease in slightly over 77% of a series of 27 coronary thrombosis cases.

In view of the above findings and because of the many variables in the actual technique of the Waugh-Ruddick test this procedure has not been found to be of value in the assessment and prognosis of cases of coronary occlusion.

THE PROTHROMBIN TIME

determining the prothrombin time Quick's method was employed, using thromboplastin prepared weekly from rabbit's brain. In many instances prothrombin times on undiluted plasma were compared with those obtained after a 1:8 dilution with normal saline. Normals on undiluted plasma are 15 to 22 seconds—on the 121/2% dilution from 60 to 80 seconds. Prothrombin times on diluted plasma were found to be unreliable, particularly when prolonged after dicoumarol therapy. stance, the prothrombin time on one occasion was 38 seconds on each of two patients. When these samples were diluted 1:8 the prothrombin time on one was 400 seconds and on the other 1,100 seconds. This is an exaggerated example of a variability which renders the use of diluted plasma undesirable for this test, especially when the prothrombin time is prolonged. Other instances of this marked variability are illustrated graphically in Graph 2.



This graph depicts the prothrombin times of a patient hospitalized for acute coronary occlusion and treated with dicoumarol. The solid line represents the whole plasma prothrombin time and the interrupted line the prothrombin time when 121/2% plasma was used. It will be noted that the interrupted line tends to swing while the solid line follows a regular course. In several places the dilute plasma prothrombin time is falling while that of the whole plasma is rising and vice versa. Hence there does not appear to be a constant correlation between the prothrombin times done by the two methods. It will also be readily appreciated that such swings of the dilute plasma prothrombin time as shown here make it an unsuitable guide for the regulation of dicoumarol dosage.

Interpretation of tests.—It is of interest that only 2 of 15 patients with acute coronary occlusion showed prothrombin times below the normal at the time of admission to the hospital though it may be significant that it was at the lower limit of normal in an additional 11 cases (Table II). These findings are in agreement with those of Cotlove and Vorzimer⁵ and of Wright⁶ but at variance with those of Peters.

COAGULATION TIME

The coagulation time was measured by the method of Lee and White using three tubes as described in their original report. Judging from the values obtained, in comparison with prothrombin times done at the same time on the same patient it would seem desirable to extend the upper limits of the normal values to 15 minutes (Table II). This would conform more closely with other standards of normalcy.

Table II.

PROTHROMBIN TIME AND COAGULATION TIME ON ADMISSION

Case No.	Prothrombin time in seconds			
	Diluted	Undiluted		
1		15	10	
2	. 67.5	16.25	13	
3		17	12	
4	. 230	30	13	
5		17	10	
6		15	9	
7		15	16	
8		13.5	11.5	
9		15	14	
10		16	15	
11	. 66	13.5	15	
12		17	11	
13		17	12	
14	. 191	20.5	18	
15	. 61	15.	13	

Interpretation of results.—Coagulation times on admission varied from 9 to 18 minutes, and were equally distributed throughout the normal range. In the untreated series, there was no constant variation of the coagulation time during hospitalization.

CIRCULATION TIME

The intravenous decholin arm to tongue test was used. The normal range for bed patients was found to be from 15 to 20 seconds. Inasmuch as the end point in this test is a subjective one, it varies somewhat with the intelligence and co-operation of the patient. Occasionally, very ill patients cannot co-operate satisfactorily, rendering the test valueless.

Interpretation.—Table III shows that 8 of 15 patients suffering from coronary occlusion had a normal circulation time when admitted to the hospital. The remaining patients showed a prolonged circulation time of from 27 to 32 seconds. Four of these subsequently became normal, one remained unchanged, one patient had one estimation only before death, and one patient showed an increasing circulation time during the 2 weeks of hospitalization. It should be noted

TABLE III.
CIRCULATION TIMES (in seconds)

Case No.	Value on admission	Subseguent behaviour	Clinical shock on admission	Clinical course
1 2	19 20	Unchanged One determi- nation only	No No	Recovered Left hospital against ad- vice
3 4	15	Unchanged	No No	Recovered Recovered
4	27	Increased (to 47 sec.)	Yes (mild)	Recovered
5	27.5	Decreased	No	Recovered
6	32	(to 16 sec.) Decreased (to 14 sec.)	No	Recovered
7	17	Unchanged	No	Recovered
7 8 9	18	Unchanged	No	Recovered
9	21	Decreased	Yes	Recovered
1		(to 16 sec.)	(mild)	Recovered
10	16	Unchanged	No	Recovered
11	28	Unchanged	No	Recovered
12	No	Second test	Yes	Recovered
	response	29 sec. de- creased (to 20 sec.)		
13	30	Decreased (to 22 sec.)	No	Recovered
14	28	One determi-	Yes	Died
15	19	nation only One determi- nation only	No	Died

that three of the four cases showing clinical shock at the time of admission had a slowing of the circulation time; that clinical shock was not present in the remaining 4 patients whose circulation times were below normal on admission, and that one of the two patients who subsequently died had a normal circulation time.

BLOOD VOLUME

Blood volumes were determined by the Evans Blue method using a photoelectric colorimeter.^{5, 5} Twenty-five milligrams of the dye were injected intravenously into one arm and the blood sample withdrawn from the other 15 minutes later. Undyed plasma from the patient was used for colorimetrie eomparison. It was found that if the test was repeated weekly, as first intended, pigmentation of the skin frequently appeared and remained for weeks, which constituted a serious objection to the test. Hence blood volume was determined only on admission and on discharge.

Interpretation of results. — No significant changes were noted in 5 patients tested. In four patients on whom the test was repeated during convalescence, the results were equivocal. Two showed higher values at the time of admission than at discharge, one showed no change, and one had a higher blood volume on discharge than on admission.

HÆMATOCRIT VALUES

The plasma-red cell ratio was determined by means of a Wintrobe Hæmatocrit. centringing at 2.800 r.p.m. for 30 minutes.

Interpretation of results.—Four of the 15 patients revealed significant hemoconcentration at the time of admission, while two others showed a relative hemoconcentration as compared with their hematocrit readings at the time of discharge. These six cases are shown in Table IV. Eight of the remaining patients had normal values throughout hospitalization. One who also suffered from polycythemia vera showed no significant change during his illness.

TABLE IV.

CASES SHOWING FALL IN H.EMATOCRIT VALUE OF 4% OR OVER FROM ADMISSION LEVEL

Case No.	Admission value	Lowest value during hospitalization
	%	ζ <u>΄</u> ς
1	5Ó.O	% 44.0
5		51.5
7	52.5	45.5
11	47.5	43.5
10	58.0	53.0
8	38.5	32.5

HYPOPROTEINÆMIA

The plasma proteins were determined by the copper sulphate method which was found to compare well with the Kjeldahl procedure.²⁷

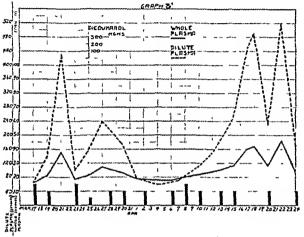
Interpretation. — The plasma proteins were within normal limits in all patients, thus excluding hypoproteinamia as a significant factor in this series.

DICOUMAROL

Dosage.—The dosage of dicoumarol used in this series followed the plan recommended by the Mayo Clinic Group.16 An initial dose of 300 mgm. was given and the prothrombin time determined 48 hours later. Subsequent dosage was governed entirely by the level of the prothrombin time, 40 seconds being considered the optimum level. Single doses of from 100 to 200 mgm. of the drug were administered whenever the prothrombin time fell to the 35 second level. Theoretically such a rule avoids overdosage and maintains an optimum therapentic level as long as desired. In actual practice a number of difficulties are encountered and it is a discussion of these which prompts this report.

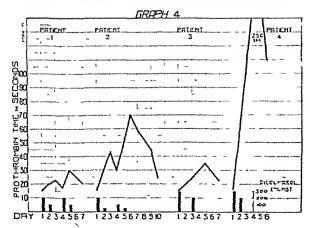
One of the greatest difficulties in dicoumarol administration is the determination of indi-

vidual susceptibility to the drug. The standard dosage may provoke a satisfactory rise in the prothrombin time in one patient while in the next the same dosage causes no change whatsoever. These difficulties have been encountered by others. 11, 12, 13, 15 To add to these difficulties, these same refractory patients may later exhibit satisfactory response on a smaller dosage of the drug. Some of the variables are illustrated in Graphs 3 and 4. Graph 3 illustrates the initial satisfactory response, the subsequent failure of the drug and finally a good response to a smaller dosage,14



Graph 4 illustrates the individual variability of response. Reference to this graph will show that all four patients exhibited different responses to essentially the same total dosage of Two might be considered within desirable therapeutic limits, whereas one is certainly greatly in excess of the limits of safety.

Toxic effect of dicoumarol .- Only one patient showed an apparent toxic effect. This patient developed nausea and eventually vomiting within a half hour after each administration



of the drug. Various attempts to disguise the drug in food, drink or medication were unsuccessful and the drug had to be discontinued.

Effect of dicoumarol on coronary occlusion.— As already stated, conclusions as to the effect of dicoumarol on the complications of coronary occlusion are not warranted in such a small series of cases. It may or may not be significant that none of the patients who received the drug developed thrombotic or embolic complications. This was also true of the controls.

SUMMARY AND CONCLUSIONS

- 1. No constant changes in the blood have been noted in patients suffering from coronary occlusion, as measured by the Waugh-Ruddick test, circulation time, the coagulation time, the prothrombin time and the blood volume.
- 2. The individual variation in the effects of dicoumarol on the prothrombin time is too great to permit of a standard dosage for all patients. The dosage in any given patient must be determined by the results of the initial test administration and the subsequent response.

Toxic effects such as nausea and vomiting are rare.

The authors wish to express their thanks to Messrs. Ayerst, McKenna and Harrison for assistance in this investigation.

REFERENCES

- WAUGH, T. R. AND RUDDICK, D. W.: Canad. M. A. J., 50: 547, 1944.
 Idem: Canad. M. A. J., 51: 11, 1944.
 OGURA, J. H., FETTER, N. R., GLUECK, H. J. AND BLANKENHORN, M. A: Proc. Central Soc. Clin. Res., 19, 47, 1014. 18: 47, 1945.
- QUICK, A. J., STANLET-BROWN, M. AND BANCROFT, F. W. Am. J. M. Sc., 190: 501, 1935.
- 5. COTLOVE, E. AND VORZIMER, J. J. Ann. Int. Med., 24: 648, 1946.

- WRIGHT, I. S. Am. Heart J., 32: 20, 1946.
 PETERS, H. R., GUYTHER, J. R., AND BRAMBEL, C. D. J. Am. M. Ass., 130: 398, 1946.
 GIBSON, J. G. AND EVANS, W. A. J. Clin. Invest., 16: 301, 1937.
 NONTERS.
- Noble, R. P. and Gregersen, M 1 J. Chn Intest., 25: 158, 1946.
- PHILLIPS, R. A., VAN SLIKE, D. D. et al. Report from U.S. Navy Research Unit at the Hospital of the Rockefeller Institute for Medical Research
- 11. Evans, J. A.: Lahey Chn. Bull., 2: 248, 1942.
- MITTER, O. O., BINGHAM, J. B. AND ANELROD, V. J. M. No., 204: 11, 1942.
- PRANDONI, A. AND WRIGHT, L.: Bull. N.Y. Acad. Med., 18: 433, 1942.
- CRAWFORD, T. AND NASSIM, J. R.: The Lancet, 1: 404, 1944.
- Townsend, S. R. and Mills, E. S.: Canad. M. A. J., 46: 214, 1942.
 Barkee, N. W., Cromer, H. E., Huen, M. and Waugh, J. M.: Surgery, 17: 207, 1945.

At the present time, in geriatrics (the medical treatment of old age) the greatest pitfall appears to be the temptation to use stimulating compounds only, of any origin and structure, in order to prevent pathological ageing.-Brit. M. J., p. 468, September 28, 1946.

ECTOPIC PREGNANCY AS A DIAGNOSTIC PROBLEM (A study of 100 cases)

H. B. Atlee, M.D., F.R.C.S.(Edin.)[C.]

Halifax, N.S.

OF all pathological conditions arising in the female pelvis ectopic pregnancy is probably the most commonly misdiagnosed. This has certainly been my own experience and, if the pre-entry diagnosis on patients entering my service at the Victoria General Hospital is any criterion, it is the experience of others also. Because of this I thought it might be worth while to go back over 100 consecutive cases of the disease in an attempt to discover some diagnostic principles that might make error less likely.

To begin with, let us glance briefly at the clinical picture presented. There are really two clinical pictures, which differ considerably from one another. In one, the symptoms and signs are the result of the rapid loss of a fairly large quantity of blood into the peritoneal cavity—acute ectopic: in the other the loss is smaller and much slower-chronic ectopic. Since most textbooks fail to distinguish clearly between these two pictures they confuse the scarcher after truth, so that the average student comes to think of ectopic pregnancy as a condition that should be associated with amenorrhœa and signs of a considerable internal blood loss, whereas amenorrhæa is present in only about the half of all cases, and signs of large internal blood loss in slightly over a third. Furthermore, it is in the larger group where the internal blood loss is slight that the greatest diagnostic difficulty arises.

The acute ectopic pregnancy picture.—Here is a woman in the child-bearing age with the signs and symptoms of a serious internal hæmorrhage. With or without having missed a menstrual period, she is stricken with severe pain in either iliac region, or in the hypogastric region. Usually she faints or feels like fainting, and often she vomits once or twice. Bleeding per vaginam is usually present, but may be absent. The temperature may be raised, but in half the cases will be normal or subnormal. She will be tender and resistant over most of the abdomen but particularly over the area of greatest pain. She will be tender bimanually on moving the cervix, and if a definite tender

mass is not felt in one of the fornices she will be tender there, sometimes exquisitely so. If there is some clotting of blood in the pouch of Douglas it will be felt as a rather vague, doughy swelling. The pulse will be rapid and keep getting more so. The woman grows paler and paler with a low hæmoglobin index and red cell count. While there may be no leucocytosis, in some cases it rises as high as 35,000. Finally, the woman begins to grow restless from blood loss and very soon the situation deteriorates seriously with increasing restlessness, pallor, shallow and sighing respirations and unless something is rapidly done about it—death.

The above picture develops within a few hours of the onset of the symptoms, and cases have been known to bleed to death in less than an hour. One of our cases whose symptoms had lasted slightly over two hours, died shortly after admission, before she could be given blood.

Let us develop this picture in more detail, with special reference to any light thrown upon it by the study of the 100 cases under consideration.

Pain.—This is the most constant symptom and was present unmistakably in every case of acute ectopic. of which there were 33. In all 33-cases it could be called severe. While there was no constant character to the pain, it usually began as a sort of colic, became sharp and cutting,—sometimes agonizingly so-and then settled down to a rather severe ache. Usually felt in one or other of the iliac regions, in about a third of the cases it was most marked in the hypogastric region. In two cases the greatest pain was felt in the right hypochondriac region. one of which was sent into hospital with a diagnosis of biliary colic. One case felt her maximum pain in the rectum. (Since making this study I have encountered another case in which the pain was rectal.)

The important points about the pain in acute ectopic are then: (1) that it is always severe: (2) that it does not need to be iliac in location: (3) that it is always present.

Abdominal examination. — Tenderness is a constant finding, usually most marked over the area of maximum pain. Rebound pain is sometimes present, sometimes absent. There is usually some resistance over the entire abdomen, greatest over the area of greatest tendernss, but in none of our cases was it a board-like rigidity. In 7 of the 33 cases this resistance was present

only over the area of greatest pain. Nothing was found at operation to account for this variability in resistance, which did not appear to depend either on the amount of blood lost internally or on the amount of tubal damage present. In 5 cases the effused blood gave the abdomen a doughy feel, but this was present only in those cases which had no generalized resistance. all 17 cases in which the abdomen was percussed evidence of movable dullness was obtained. Cullen's sign-a bluish discoloration of the skin near the umbilicus-was not present in any case, and I have only seen it once in my life. Occasionally a mass will be felt rising out of the pelvis, but in this series it was present only in cases of secondary abdominal pregnancy, and in not all of those (3 out of 6).

The important points in the abdominal examination are: (1) There is always tenderness and usually resistance; (2) percussion will practically always reveal movable dullness; (3) a mass is very seldom found and if found suggests a secondary abdominal pregnaucy.

Vaginal bleeding.—This is absent in a surprisingly high number of the acute cases, 9 out of 33. It is usually moderate in amount and about the equivalent of a menstrual period in three-quarters of the cases. Occasionally it is just a brownish stain—two cases. In two other cases it was severe enough to suggest a miscarriage. A complete decidual cast was passed in only one case: and in only one other were there fragments large enough to be noted.

The important points about the vaginal bleeding are: (1) it may not be present; (2) it is variable in amount and colour; (3) it may only be a brownish stain that the patient has failed to notice.

Vaginal examination.—Tenderness on pressure in the vaginal fornix on the side affected was present in all cases. Tenderness on moving the cervix was present in 25 of 33 eases. A pelvie swelling or mass was palpable in slightly over half the cases (18 out of 33). Clotting of blood sufficient to cause a doughy mass in the pouch of Douglas was present in 5 eases. Most textbooks speak of enlargement of the uterns in cetopic pregnancy as though it were a useful sign: we could detect it in only 9 cases and in my opinion it is a poor sign. In 5 cases in which the patient did not know she was bleeding or staining per vaginam we discovered it while doing the vaginal examination.

Important points arising out of the vaginal

examination: (1) there is always tenderness on pressure in one of the vaginal fornices: (2) there is usually tenderness on moving the cervix: (3) failure to feel a tubal mass does not rule out the condition; (4) do not take the patient's word that she has no vaginal bleeding—look and see.

Temperature.-In 23 of the 33 acute cases the temperature was normal or subnormal, the lowest 95° F. In the 10 cases in which it was raised the highest was 101.6° F. I thought that there might be some connection between the temperature and the amount of and rapidity of the internal blood loss: was the large pereentage of normal and subnormal temperatures due either; (1) to a large blood loss; or (2) to the short time elapsing between blood loss and Our series seems to admission to hospital? show that there is no such connection. case operated upon 3 hours after onset of symptoms had a large internal blood loss-over 1,200 e.c. — and a temperature of 100.6°. Another case operated on 17 hours after the onset of symptoms had an internal blood loss of only 500 c.c., and a temperature of 96°.

Important points arising out of temperature: (1) a normal or subnormal temperature is much more common in acute than in chronic ectopic; (2) a subnormal temperature is a useful confirmatory sign in a woman with severe low abdominal pain and signs of internal hæmorrhage, since acute cctopic is the only critical low abdominal condition likely to be associated with a subnormal temperature.

Leucocyte count.—In only two cases was the white cell count below 10,000—lowest 5,400. In all others it was raised—highest 35,000. We hoped here to find that the time element would play some part in the production of a leucocytosis, and that the longer the symptoms had lasted the more likelihood there was of a high leucocyte count, and vice versa. There was no evidence in our series to support such a contention: nor did the amount of internal blood loss seem to play any part.

Important points arising out of the leucocyte count: (1) a raised leucocyte count is a useful diagnostic aid; (2) acute cetopic can exist with a leucopenia.

Hæmoglobin index and red cell count.— These are invariably lowered in acute ectopic. In the two cases in which the Hb. index was 70, more than 600 c.c. of blood in one case and 900 c.c. in the other were mopped up from the abdominal eavity. On the other hand in one case that had a Hb. index of only 36 there was the remarkably small internal blood loss of 300 e.e. The red eell count more or less followed the Hb. index. The important point arising out of the Hb. index and red blood count was that they are almost invariably low, but are not necessarily a perfect indication of the amount of internal blood loss.

Amenorrhæa.—In slightly more than half of the eases there was no history of amenorrhæa, and this symptom is no more common in acute than in ehronic eetopic. The longest period of amenorrhœa in our series was 118 days-a ease of secondary abdominal pregnancy. The shortest was 15 days, which may seem fantastie, but so far as I could learn from a careful questioning of this patient the period that occurred 15 days before the onset of her symptoms was a perfectly normal one. In this particular ease the pregnancy was a very early one, in the interstitial portion of the tube-and do not some women seem to be able to get pregnant at any time in their menstrual eyele? But what is more, we had 9 of our total of 100 eases of ectopic in which the symptoms came on less than 28 days following the last period in women whose cycle was approximately 28 days in length. I do not believe that the textbooks stress sufficiently the fact that amenorrhea is a relatively unimportant symptom, for it almost invariably happens that when I ask a final year medical student in his orals for the symptoms of eetopie, he meutions amenorrhœa first-and these my own students, too!

The important diagnostic fact arising out of amenorrhoa is that, since it is present in less than half the eases, its absence should not turn one away from a diagnosis of acute ectopic.

CHRONIC ECTOPIC PREGNANCY

Sixty-seven of my 100 cases were of this clinical variety, and it was here that the greatest difficulty in diagnosis was encountered and the most mistakes made. This is the sort of picture that presents itself: a woman, with or without a history of amenorrhæa, gets pain or soreness in one or the other iliae fossæ or in the hypogastric region. With the onset of pain or soreness she begins to bleed or to stain per vaginam. Sometimes the pain comes first, sometimes the bleeding, but they are never far apart. She may feel weak or faint—51 of 67 did so. On examination she is tender over that

part of the abdomen where she feels pain, but there is often very little abdominal rigidity. Bimanually a small tubo-ovarian mass is usually felt on one side of the pelvis, but may not be. The temperature is slightly raised: there is usually leucocytosis. The patient may have been up and around carrying on with her work for days, or even weeks, before sending for her doctor, and may have been treated by him for some time before a diagnosis was made. Nine women who at first presented the picture of chronic ectopic later became acute.

Let us now examine this picture in detail,

Pain.—Usually this is severe enough to send the patient to her doctor, but it has not the dramatic savagery of the acute variety. Sometimes it is no more than a nagging, but all the eases save one in my series presented discomfort in the lower abdomen that varied from soreness to severe pain, and even the exception confessed after her operation that her right side "hadn't felt right" from the time her vaginal bleeding started. While usually felt in one or the other iliac region the pain may be located in the hypogastrium.

Important points about the pain: (1) it is always present, although in some eases it may amount only to a discomfort; (2) it is not necessarily iliae in location.

Abdominal examination.—Tenderness was invariably present, and was usually most marked where the pain was severest. It varied greatly in severity, in some eases the mere touch of the hand was more than the patient could bear, in other eases deep palpation was necessary to bring it out. Resistance was present in only 25% of the eases. When there is a large pelvic hæmatocele present, or an ovarian cyst, or a secondary abdominal pregnancy, a tumour may be felt in the abdomen, but this was the ease in only 7 of the 67 chronic cases.

Important points in the abdominal examination: (1) tenderness is always present in the low abdomen: (2) deep palpation may be required in some eases to elicit it: (3) if a tumour ean be felt it is probably a secondary abdominal pregnancy, some accompanying pelvic tumour, or a pelvic hamatocele.

Vaginal bleeding.—This is rarely absent—in only 3 out of 67 eases. It varies considerably in character and amount. In some eases it was excessive enough to suggest a miscarriage, in others it was merely a brownish stain so slight in amount that in 10 of the 67 eases the pa-

tient did not know she had it. Once it starts it is usually present continuously and in one of our cases had been so present for 59 days. Occasionally it was interrupted for anything from a day to two weeks. The patient may regard the first such spell of bleeding as a menstrual period.

Important points about the vaginal bleeding: (1) it is almost always present; (2) it may only be a brownish stain of which the patient is ignorant and which you will discover only when you do the vaginal examination; (3) since in half the cases the vaginal bleeding comes on at about the time the menstrual period is due, the patient will often misinterpret it to you as a period, either normal or abnormal.

Vaginal examination. — The bleeding or brownish discharge will be noted. The cervix is usually tender when moved, but there is always tenderness on pressure in the fornix on the affected side. A tubo-ovarian mass was felt in 51 of 67 cases: was not felt in the others. Hæmatocele formation often creates diagnostic difficulty, since it may feel like a fibroid, or an ovarian tunour, or a pyosalpinx, and in our series three fairly large hæmatoceles were so misdiagnosed. In only 7 of the 67 cases could any definite uterine enlargement be made out.

Important points in the vaginal examination: (1) very slight bleeding or brownish discharge of which the patient is unaware may be discovered by the vaginal examination: (2) inability to feel a tubo-ovarian mass does not rule out chronic ectopic; (3) there is always tenderness on pressure in the fornix on the affected side.

Temperature.—This was almost always raised; it was normal in only 6 of 67 cases. In only one case was the temperature below 98°, and in this case it was 97.4°. The subnormal temperatures which are fairly common in acute ectopic are not present in chronic ectopic. The temperature is usually around 100, but the highest in our series was 103°.

Important points about the temperature: (1) it is almost always above normal, and practically never subnormal; (2) a temperature as high as 103° does not rule out ectopic.

Leucocyte count.—In only 13 of the 67 cases was it below 10,000. It does not go as high as in the acute condition. In our series the highest was 24,000, and averages around 12,000.

Important point arising out of the leucocyte count: it is usually raised and in most of the

cases which I diagnosed ectopic and found something else it was not raised: I therefore always hesitate in diagnosing chronic ectopic when the leucocyte count is normal.

Hæmoglobin index and red cell count.—The hæmoglobin index was usually above 60, although in one case it was as low as 30. In 31 of the chronic cases, almost half, it was 70 or above, the highest being 85. Generally speaking the red cell count followed the hæmoglobin index.

Important point arising out of the Hb. index and red blood count: chronic ectopic can be present with very little evidence of anæmia, and this is so in almost half the cases.

Amenorrhæa.—As in acute ectopic this symptom was absent in about half the cases. A history of amenorrhæa is not necessary for the diagnosis of chronic ectopic.

So much for the two clinical pictures presented in ectopic pregnancy. There are now certain diagnostic methods that should be mentioned.

Examination under anæsthetic. — By this method the presence of a tubo-ovarian mass can be established in practically every case, whether of the acute or chronic variety. It is therefore of great value in doubtful cases, especially when acute. Occasionally, however, a mass will not be felt under the anæsthetic. This happened in 5 of our cases and was due either to, (1) the escape of the mole from the tube or. (2) a very early case in which the tubal enlargement was too slight to be palpated even with complete abdominal muscle relaxation.

Needling the pouch of Douglas — A long needle attached to a 20 c.c. syringe is pushed up into the pouch of Douglas from the vagina in an attempt to obtain free blood. This was done in 20 of our cases, and in only one did we fail to obtain any blood at all, although there were 9 cases in which the amount of blood obtained was less than one c.c. The test was therefore of unquestioned value in only half the cases in which we tried it.

Biological tests.—The Friedman and Zondek-Ascheim tests will be positive as long as there are actively functioning chorionic villi, but as this is likely to be the ease only where the pregnancy is continuing as a secondary abdominal it has slight practical value. We did not use the tests in any of our 100 cases, but in a recent case of secondary abdominal pregnancy in which I wished to try it they had no rabbits of the right vintage in the laboratory

Dilatation and curettage.—This is done to obtain decidua which, if present without chorionic villi, would point to ectopic. We did not use this test intentionally in any of our series, for the following reasons: (1) if the vaginal bleeding has lasted for more than 10 days in any quantity all of the uterine decidua will be shed, and in most of our chronic cases the bleeding had been present for at least that length of time. (2) In acute ectopic there is no time for such delaying measures.

Hysterosalpingography. — Injection of the uterus and tubes with iodized oil, followed by the taking of an x-ray picture, may show up an ectopic very clearly. We did not use this method in any of our cases.

Important points arising out of the above five diagnostic methods: (1) only the first two, examination under the anæsthetic and needling of the pouch of Douglas, appeared to us to be of practical value, and of these two the first was the most useful: (2) needling of the pouch of Douglas is likely to obtain blood only in those cases in which there is a fair amount of free blood in the pouch, it is therefore not likely to be of much value in patients who show by their slight degree of anemia that they have little internal bleeding, in other words the cases in which diagnosis is most difficult; (3) the Zondek-Ascheim test is likely to be of value only where there is a continuing secondary abdominal pregnancy.

There are other factors that enter the diagnostic field, not so much as aids but as red herrings.

History of previous pelvic inflammatory disease.—Although evidence of previous pelvic inflammation was present in 25 of our 100 cases, a history of this condition was obtained in only 13. While such a history may point up the etiology, I have not found it of any value in arriving at a correct diagnosis. Indeed, the reverse was the case, since one was more apt to think of a fresh attack of inflammation than of ectopic pregnancy.

History of sterility.—Previous sterility or relative sterility is said to be present in a large percentage of women who develop ectopic pregnancies. Our findings seemed to confirm this. In 20 of the 100 cases there had been no previous pregnancy: in 26 there had been none for three years or more: and in 21 the last pregnancy ended in a miscarriage. However, since we have no knowledge in any of our series of

the use of contraceptives, not much stock can be placed in these figures.

Presence of accompanying disease.—Apart from the evidence of previous pelvic inflammation, other pelvic conditions complicated the picture in 12 cases. One of these had had a genuine miscarriage 24 days previously: in 7 there were follicular cysts of the ovary of the same side varying from size of a hen's egg to that of an orange: in 2 there was such a cyst on the opposite side: in 2 cases there were small subscrons fibroids.

History of a previous ectopic.—In all 7 eases where this story was obtained the diagnosis was made quickly and correctly, the patient making it herself in 3.

Of the above four factors only the last appeared to us as being of any positive value in arriving at a correct diagnosis: all of the first three, on the other hand, tended to make a diagnosis of ectopic either less likely, or less easy to arrive at.

How well did we do diagnostically in our 100 cases? I have unfortunately no record of the number of times we diagnosed ectopic and found something else, since our system of record-filing does not lend itself to that information, but there must have been at least a dozen of such cases. In the 100 cases under consideration our final preoperative diagnosis—after examination under the anæsthetic and needling of the pouch of Douglas—was as follows:

Ectopic pregnancy ;	SS
Chronic pelvic inflammation	5
Pelvie abscess	2
Acute appendicitis	2
Benign uterine bleeding (metropathia)	1

Of the 12 cases in which a mistaken diagnosis was made only 2 were of the acute variety, diagnosed as follows:

1. Ovarian cyst with a twisted pedicle. There was a definite cystic tumour present in the pelvis on the right side. The patient said she had been menstruating right along but on questioning after the operation stated that the periods had been irregular and painful. We had eetopie in mind for we needled the pouch of Douglas, but as we obtained a clear straw-coloured fluid, we made the diagnosis of a cyst. This case turned out to be a secondary abdominal pregnancy and our needle had entered the amniotic sac.

2. Acute appendicitis.—There was no vaginal bleeding, the pain was in the neighborhood of the umbilicus, but she was sore and resistant in the right iliae region. There was more vomiting than is usual with an ectopic. No mass could be felt per raginam and while she was tender in the right fornix, this tenderness was not as marked as that in the neighbourhood of McBurney's point. No period had been missed. Needling of the pouch of Douglas was not done since the possibility of ectopic was not entertained.

Of the 10 ehronic eases 5 were thought to be chionic pelvie inflammation. In 3 there was a history of a previous attack of inflammation. In one there was no vaginal bleeding. In one the pouch of Douglas was needled but no blood Nevertheless, in reading over the historics of all these 5 eases after operation, we felt that ectopie pregnancy should have been diagnosed and that we had made our mistakes by following red herrings in the histories. For the other five eases we found excuses for ourselves. We diagnosed these as below:

1. Acute appendicitis .- No vaginal bleeding. Symptoms came on before the period was due. Pain of a erampy nature centred just below the umbilicus; unusual amount of vomiting; tenderness and resistance in Mc-Burney's region. Hb. S0, red blood cells 4,300,000, white blood cells 13,000.

2. Pelvic abscess.—Temperature 103°. Nightly chills. Vaginal bleeding present for 10 days, but it was thought to be a normal period dragged out. White blood cells 18,000, Hb. 75. Abdominal tumour and large swelling in pouch of Douglas. The pouch was needled and some brownish-gray pus obtained. It was only when an incision was made along the course of the needle that the large collection of old blood began to pour out, disclosing the true diagnosis. This was an infected hæmatoma in a single girl who had a previous history of acute pelvic inflammation.

3. Ovarian cyst with twisted pedicle.—The cyst could be felt clearly and was about the size of an orange. It was very tender in one part on per vaginam examination; Hb. 80, white blood cells 7,500. Pain in side came on with vaginal bleeding at the time her period was due, and the vaginal bleeding which had lasted 3 days was like that of a normal period. Under the anæsthetic the cystic swelling was so clearcut that ectopic was not considered. This patient had a follicular cyst the size of an orange and on the same side an early ectopic

in the tube.

4. Chronic pelvic abscess.—This patient had been on our service previously with a choked pelvis in an acute attack of pelvic inflammation. She had had in the meantime several attacks of pain similar to the present one. She was bleeding but declared it was a normal period; Hb. 75, rcd blood cells 4,200,000. Irregular pelvic masses on both sides of the pelvis could be felt per vaginam, much more tender on the right than on the left. On opening the abdomen we found a mass of chronic pelvic inflammation on the left side, and on the

right the tube with the mole still in it.

5. Benign uterine bleeding.—This was the one case in our series that had practically no abdominal pain or discomfort, and so little vaginal tenderness that we disregarded it. She told us later that she did have some slight distress in the bladder region but had had it also with her last two normal periods. Her story was—she was a woman of 42—that following two weeks amenorrhoa she began to dribble blood and had been dribbling steadily for about 3 weeks: Hb. 75, white blood cells 5,900. The picture looked so much like metropathia and so little like cetopic that we decided, in view of her age, to do a vaginal hysterectomy. It was when we opened the pouch of Douglas and found free blood and the old clot that we realized our mistake.

I do not believe that, faced tomorrow with any of the above five eases, I would do any better diagnostically. It is interesting to note, however, that while there were 10 mistaken diagnoses in 67 chronic cases there were only 2 in 33 acute.

Conclusions '

What conclusions, apart from those already listed, can be drawn from the foregoing?

- 1. Given a woman of the childbearing age with severe low abdominal pain, a tender vaginal fornix and signs of internal hæmorrhage, the diagnosis is likely to be acute ectopic even if there be no amenorrhea, no vaginal bleeding, no leucoeytosis, no temperature and no palpable
- 2. Given a woman in the same age period with low abdominal pain or soreness, a tender vaginal fornix however slightly so, and irregular vaginal bleeding or brownish discharge, the diagnosis is likely to be chronic ectopic even if there be no amenorrhea, no auæmia, no leucocytosis, no temperature, no palpable mass, or no blood obtained on needling the pouch of Douglas.
- 3. When in doubt examine the patient under the anæsthetie and needle the pouch of Douglas.
- 4. Unless you have the gift of working miraeles you will inevitably make some mistakes in diagnosing ectopic pregnancy,

SUDDEN DEATH*

William J. Deadman, B.A., M.B.

Hamilton, Ont.

DEATH ordinarily comes as the termination of an illness of longer or shorter duration, in which case the elinician has, or should have some knowledge of the lesion concerned and of the organ involved. But, in many cases, death is either instantaneous, or follows an illness of relatively short duration, in an individual whose previous health was apparently good.

These cases are tragie for friends and relatives and are often puzzling to the physician who may be ealled, and who often lacks knowledge of the clinical history of the ease. absence of an autopsy, the signing of a death certificate presents no little difficulty, for, as yet, only a fraction of the number of cases of sudden or unexpected death come to autopsy. Accuracy in assigning the cause of death often assumes considerable importance. There is a medico-legal aspect to every ease of sudden and unexpected death, and every pathologist of experience has had oceasion to perform autopsies

^{*} Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Medicine, Banff, Alberta, June 12, 1946.

on bodies exhumed because of persistent rumours of foul play. Then, too, questions of accident insurance, and of pension and workmen's compensation often hinge on an accurate diagnosis of the lesion which eauses the sudden or unexpected demise.

It is therefore of eonsiderable importance that the physician should be reasonably familiar with the range of lesions and conditions which may be associated with sudden death, so that, when called upon to sign death certificates in such cases, he will, so far as clinical and statistical knowledge of the subject are concerned, be able to attain a creditable degree of accuracy in his diagnosis.

Sudden death, for the purposes of this discussion, includes instantaneous death, which occurs in a matter of seconds or minutes: unexpected death, which may be a matter of hours or days after the unexpected onset of the illness; and also eases "found dead", and those which "eollapsed and died". Deaths from violence or from poisoning are excluded. To quote Brouardel, "We will define sudden death as the rapid and unforeseen termination of an acute or chronic disease which has in most cases developed in a latent manner".

Any pathologist who has had a reasonably wide experience in the performance of autopsies in cases of sudden or unexpected deaths, will have observed the wide range of lesions coneerned and of organs involved. All the systems of the body contribute. Lesions of brain, meninges, heart, arteries, veins, lungs, liver, spleen, pancreas, adrenals, kidneys and genitals are all seen in any series of autopsies of reasonable dimensions. Instantaneous death is almost always of cardiac origin, less commonly due to massive pulmonary embolism. Other eases of unexpected death, which occur in a matter of minutes or hours after the initial seizure, are more likely to be associated with eerebral or pulmonary lesions or with hæmorrhage.

Brouardel, the French medico-legal authority of the latter part of the nineteenth century, said in a lecture to his students in 1897:

"Gentlemen, however carefully we may perform every autopsy, however minute our exploration of the body may be, however thorough may be our knowledge of the causes of sudden death, we sometimes meet with cases which it is impossible to explain. The proportion is about 8 or 10%."

Some others³ have reported similar percentages. But with the present day development of the technique of bacteriological, biochemical and

toxicological analysis, and with the improvement in histological technique and diagnosis, it would appear that the percentage of unsolved cases should, in the hands of competent pathologists with adequate laboratory facilities, he kept below 1%. There will always remain a few cases for which no solution can be found, so limited, as yet, is our knowledge of the vital processes and of the actual conditions which fatally interfere with them.

Any survey of the post morten findings in a series of cases of sudden or unexpected deaths, stresses the important rôle assumed by lesions of the cardiovascular system. Hamman, studying the analyses of a number of reports in the literature, concluded that: (a) 91% of sudden deaths from natural causes are due to disease of the cardiovascular system: (b) 65% of all cases are due to sudden heart failure; (c) 21% to hemorrhage; and (d) 5% to arterial embolism and thrombosis.

My own experience of the past 20 years, covering about 300 eases would bear this out. It is safe to say that 4 of 5 eases of sudden or unexpected death are related to lesions or disturbances of the eardiovascular system and that 1 of 5 must be ascribed to some other lesion or eause. Arterial disease, whether luctic or atheroselerotic, still remains the greatest threat to human longevity and the greatest factor in sudden and unexpected deaths. Stenosis, thrombosis and ancurysm of arteries resulting in ischæmia, infarction or hæmorrhage of vital organs, accounts for more than half of the eases of unexpected death.

The myocardium, with its neuromuscular mechanism, is probably the most sensitive and most complicated organ in the body, and is at the same time, the most essential in its function. A very few minutes' suspension of its activity, with the accompanying anoxemia of eerebral centres, is fatal. So sensitive is its nervous regulatory mechanism, with its autonomic and vagal control, that many eases of sudden death are characterized by the absence of any anatomical or histological evidence of myoeardial disease. Death may occur from syneope or from shock, and in these cases death may be considered to be but a fatal syncope. The shock may be the result of light blows upon such regions as the solar plexus, or kidney, or of increased sensitivity of the carotid-sinus reflexes, or even of intense emotional strain, all of which result in sudden inhibition of heart action. Normally the inhibition passes off in time for recovery of function, and before ischemia and anoxemia of myocardium and cerebral centres have produced irreparable damage. In certain cases, however, there seems to be an increased sensitivity of vagal and sympathetic reflexes, and a hyperirritability of the myocardium and of its neuromuscular mechanism, and then the shock ends fatally. In these cases, no pathological lesion can be demonstrated. The following two cases illustrate this type of sudden death.

(a) An abortion was attempted in a girl of 19 years, by the introduction of a solution of lysol into the uterus, using a Higginson syringe. With the introduction of the nozzle into the cervix, the girl gave a scream and collapsed, and died within a matter of a few minutes, the result of the shock caused by the too forcible dilatation of the cervix.

(b) A girl, 19 years of age, while undergoing a laparotomy for the removal of the gall bladder, in the midst of the operation collapsed on the table and the heart ceased to beat. Manual massage of the heart through the incision reestablished the heart action after about 12 minutes. Consciousness however did not return and she died about 15 hours later. Her myocardium recovered from the anoxemia but her cerebral centres did not.

Most cases of sudden or unexpected death, in which inhibition of cardiac activity is the basic factor, show various pathological lesions of the myocardium which often are not suspected during life. These lesions include fatty degeneration, fibrosis, myocarditis associated with toxemia and infection, and ischemia resulting from a narrowing of the months of the coronary vessels, commonly seen in syphilis. All these conditions result in hyperirritability of the eardio-regulatory mechanism, and in cardiae inhibition which often ends fatally in an unexpected manner. I have had eases illustrating each of these conditions, and the lesions are anatomically and histologically demonstrable upon post mortem examination.

Lesions of the mitral and aortic valves are sometimes associated with sudden death. I have had several eases of sudden death apparently based upon an aortic stenosis with co-existing cardiae hypertrophy. Stenosis is eommonly associated with a degree of insufficiency. Two factors operate in these cases. The hypertrophy and fibrosis of the myocardium must interfere with the functioning of the neuromuscular system, and the insufficiency may, at times, lower the blood pressure about the mouths of the coronary arteries, with a resulting ischæmia of the already damaged muscle which contributes to the fatal result.

I have had one case of sudden death associated with stenosis of the mitral valve.

Disease of the arteries accounts for more than half of the cases of sudden or unexpected death. Syphilis, atheroma and atheroselerosis, ending in stenosis, thrombosis, aneurysm and embolism, often bring life to an unexpected end, particularly when these lesions involve the coronary, cerebral, meningeal or pulmonary arteries or the aorta itself. I have seen cases in which the mesenteric, appendiceal, adrenal and panereatic arteries were the seat of lesions which caused a fatal termination. Hypertension is often a factor.

Coronary disease accounts for about 40% of all cases. Syphilis commonly causes a stenosis of the months of the coronary vessels, which, in extreme cases may cause an ischæmia of the myocardium with sudden failure. The common lesion is, of course, atherosclerosis of the coronary itself, particularly the left, with a resulting stenosis which alone accounts for a number of cases. Intimal damage results very often in thrombosis with occlusion, and if this occurs within the first 3 cm. of the coronary artery, death comes with tragic suddenness. The youngest case of coronary thrombosis, in my experience, was that of a girl 13 years of age, who engaged in a skipping contest just before going home at noon for lunch. On arrival at home, she was seized with violent cardiac pain and died in a few minutes. The death was so rapid and unexpected that poisoning was suspected. Autopsy showed marked atheroma of the aorta and of the left coronary artery with a thrombus about 1 cm. from its month. Investigation of the history showed that the girl had suffered from almost all the eommon exanthematous fevers between the ages of six and twelve, and this continuous exposure to toxemias had resulted in an advanced degree of atheroma of her coronary artery. Stenosis and occlusion of the lesser branches of the coronary result, of course, in infarction, and these conditions are often the forerunners of sudden myocardial failure, and, on occasion, of rupture of an infarct with death from pericardial tamponade from hæmorrhage.

I have had one case of rupture of a small aneurysm of the right coronary which gradually filled the pericardium with blood, ending fatally. I have had one case of embolism of the left coronary artery, the embolus arising from a vegetative aortic endocarditis which had pro-

duced some aortic insufficiency. I have had not a few eases of sudden myocardial failure associated with marked stenosis of the lumen of the left coronary without thrombosis or embolism.

Thrombosis and rupture of cerebral and meningeal arteries, and embolism arising from aortic disease, or mitral or aortic endocarditis, occasionally cause unexpected death, not, however so dramatically sudden as those associated with lesions of the myocardium or coronary arteries. Cerebellar and pontine hæmorrhages are ordinarily the most rapidly fatal. The rupture of ancurysms, either of the Circle of Willis, or elsewhere in the cerebral arterial system aeeounts for a few eases. I have had two eases of presumed aecidental deaths, in both of which the aecident was the result of the rupture of an intracranial aneurysm, in one case of the basilar artery and in the other, of the right carotid just where it emerges from its foramen.

Embolism of the pulmonary artery provides many a sudden death for the surgeon, just at the time in convalescence when his operative or accident patient is preparing to leave the hospital. The embolus is usually a thrombus from some large vein, commonly near the site of the operation or injury. Death in these cases seems to be due as much to neurogenic and circulatory shock, as to actual interference with pulmonary circulation. This condition was first described by Virchow about one hundred years ago.

I have had six eases of unexpected death due to air embolism, the air being accidentally introduced into the venous system in an attempt to procure an abortion by injecting an antiseptic solution into a pregnant uterus by means of a Higginson type of syringe. I have had one case of rapid death from "castor oil embolism", the castor oil being introduced in the same fashion for a similar purpose.

Thrombosis of branches of the mesenteric artery, hæmorrhage into adrenals from rupture of damaged adrenal arteries, and so-called 'pancreatic apoplexy' account for a number of unexpected deaths. The latter may cause death within a half hour of the onset. I have recently had two eases of death of obsence etiology which showed, at autopsy, large retroperitoneal absecsses of the head of the pancreas following an acute onset of 'pancreatic apoplexy'.

Rupture of aneurysms of the aorta, into the perieardium or into the pleural or mediastinal spaces, occasionally terminates life in an unforeseen manner.

Disease of the veins is the basic factor in many deaths from pulmonary embolism and from hemorrhage. Angiomata, phlebitis and varicosities predispose to venous thrombosis. as do shock and stasis of the circulation. Escaping thrombi, if large, bring sudden death from pulmonary embolism: ruptured varicose esophageal or gastric veius result at times in unexpected deaths from massive and at times concealed hemorrhage.

Lesions of the circulatory system, as stated, account for from 80 to 90% of cases of sudden death. The remaining 10 to 20% are referable to a variety of lesions in the remaining systems of the body, excluding, of course, lesions with a vascular basis.

Sudden death occurs in eases of brain tumour. I reeall one of my early cases, in which brain tumour had not been diagnosed, and in which death occurred suddenly during the course of a lumbar puncture. At autopsy, a large glioma of the ccrebellum was revealed. The removal of the spinal fluid pressure had allowed the cerebellum to jam itself down into the foramen magnum, resulting in shock from which the patient died immediately. Sudden deaths in cases of epilepsy have been recorded. In my own experience, I have had two cases of unexpected death in epileptics, both due, however, to asphyxia from inhaled vomitus. Aside from a few cases of pachymeningitis interna hæmorrhagica, really a vascular lesion, I have not encountered any ease of sudden death from meningeal lesions.

The respiratory system has in my experience furnished cases of sudden death resulting from aente ædema of the larynx- and from aente pulmonary ædema of undetermined origin. I have had two cases showing extensive lobar pneumonia, in which the individuals earried on their ordinary activities up to within 24 hours of death. Sudden death in infants is often due to an incipient bronehopneumonia or to capillary bronchitis.

The alimentary system has in my experience furnished cases due to rupture of the esophagus and rupture of the stomach wall, with escape of gastrie contents and digestion of surrounding tissue. I have felt that these cases were probably due to infarction with rupture. I have seen two cases of death in semile individuals due to the apparently spontaneous rupture of the transverse colon distended with fæces. In Macedonia in 1918, I autopsied a

soldier, who fell from a horse and died within the hour, as the result of the rupture of a 2,000 gm. malarial spleen.

Rarely, lesions of the kidney give rise to unexpected death through the onset of a fulminating attack of uremia, with death within 24 hours of onset. I have observed two such cases, showing at autopsy, third stage glomerulonephritis, but without previous history of nephritis.

Unexpected death in acute infections occasionally occurs. A 16 year old boy working in a tanning factory, seratched his thumb. was applied to the injury at once. He was taken ill in a few hours and was dead 36 hours after receiving the injury. Autopsy showed the stigmata of septicæmia. Culture from the wound and from the heart's blood gave a flourishing growth of Strep. hæmolyticus.

I shall make but a brief reference to the controversial subject of "status thymico-lymphaticus". I have not encountered this classical anatomical syndrome for some years. But in my earlier experience. I had four or five cases of death in youths under the age of 17 years, occurring suddenly under circumstances of insignificant trauma or shock, which at autopsy showed the syndrome of enlarged thymus, hypoplasia of heart, aorta and adrenals, with hyperplasia of abdominal lymphatic tissue. findings of the Status Lymphaticus Committee of the Medical Research Committee in Britain. and the eonclusions of Goldbloom and Wiglesworth11 appear to rule out status lymphaticus as a pathological entity. Boyd,12 however, states, "There can be no room for doubt that the eonstitutional disturbance known as status lymphaticus is a real entity".

The faet remains that, on occasion, individuals die suddenly, as a result apparently of trivial shocks, who do demonstrate at autopsy the anatomical syndrome. Death is undoubtedly due to shock, and the question of the relationship of the existence of this syndrome to the condition of extreme hypersensitivity to shock in these cases, is perhaps, still to be elucidated.

SUMMARY

- 1. Eighty to 90% of cases of sudden or unexpected death are due to lesions or disturbances of the eirculatory system.
- 2. Sixty-five per cent of such deaths are due to cardiac failure.

- 3. At least 50% of such cases are due to lesions of arteries.
- 4. About 40% are due to lesions of coronary arteries.
- 5. A small percentage of cases, even with the most exhaustive investigation, will remain in-These should not exceed 1% of the total.
- 6. The rôle of lesions of the cardiovasenlar system in the etiology of sudden death is noteworthy.

REFERENCES

- REFERENCES

 1. BROUARDEL, P. AND BENHAM, F. L.: Death and Sudden Death, William Wood & Co., New York, 1902.

 2. GONAZLES, T. A., VANCE, M. AND HELFEN, M.: Legal Medicine and Toxicology, D. Appleton-Century Co. Inc., New York and London, 1940.

 3. BENFORD, T. H. B.: J. Path. & Bact., 36: 33, 1933.

 4. CLELAND, J. B.: M. J. Australia, 1: March: 3, 1915.

 5. DIBLE, J. H.: Liverpool Med. Ch. J., 43: 167, 1935.

 6. GRAY, F. T.: Post. Grad. Med. J., 13: 16, 1937.

 7. HELFERN, M. AND ROBSON, S. M.: N.Y. State J. Med., 45: 1195, 1945.

 8. HAMMAN, L.: Bull. Johns Hopkins Hosp., 55: 387, 1934.

 9. MORITT, A. R.: Neid Eng. J. Med., 223: 789, 1940.

- 9. Mority, A. R.: New Eng. J. Med., 223: 789, 1940. 10. Weiss, S.: New Eng. J. Med., 223: 793, 1940. 11. Goldbloom, A. and Wiglesworth, F. W. Canad. M. A. J., 38: 119, 1938. 12. Bord, W. Surgical Pathology, W. B. Saunders and Co., Philadelphia and London, 1942.

General Hospital, Hamilton,

ANÆSTHESIA FOR PLASTIC SURGERY"

R. A. Gordon, B.Sc., M.D., D.A.

Toronto, Ont.

THE practice of anæsthesia for plastic surgery presents many special problems. Most of these problems are of a technical nature, and the satisfactory solution of these not infrequently determines the safety of the patient's life, the ease with which the necessary surgical manipulations may be performed, and the end result of the operation. In this field as in any other it is necessary that surgeon and anæsthetist should each be aware of the problems confronting the other, and that there should be the fullest eo-operation in order to obtain the optimum result. The secret of success is good teamwork, backed by good judgment and adequate technical skill.

CHOICE OF TECHNIQUE

The primary factor which determines the choice of technique is the site of operation. For

Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Anæsthesia, Banff, Alberta. June 14, 1946.

^{*} From the Department of Anæsthesia, University of Toronto and the Department of Anæsthesia, Toronto General Hospital.

those operations which involve only the extremities or the body wall any adequate technique will suffice, provided due consideration is given to certain aspects to be discussed later.

The majority of plastic procedures involve surgical manipulations about the face. A significant number involve procedures within the mouth, nose or antra. Others involve the neek. For all these an endotracheal technique is the one of choice. For those involving the air passages it becomes imperative. We find, also, that those procedures which require the patient to be in the prone position for the whole or part of the operation are more easily accomplished by intubation.

In addition to the necessity of keeping the anæsthetist out of the operative field, there are other considerations which make endotracheal anæsthesia the technique of choice for procedures about the head and neek. The control of bleeding is one of the great problems confronting the plastic surgeon. The life of skin grafts of all types depends on the control of bleeding from the beds on which they are placed. Any obstruction to the airway of the patient even though it be so slight as to cause a scarcely noticeable increase in the respiratory effort, will result in congestion of the venous system of the head and neek, extending to the venules of the skin. This eongestion causes oozing, which may defeat the whole purpose of the operation. Proper intubation of the traehea will ensure a patent airway and respiration as free as possible from impediment. At this point it should be pointed out that an endotracheal tube which is too small, or which is obstructed by a kink or by compression is worse than no intubation.

It is desirable as a rule, that the lightest plane of surgical anæsthesia consistent with good operating conditions should be used for patients requiring plastic surgery. Profound muscular relaxation is usually not required, and by the use of light anæsthesia postoperative toxic effects and depression will be avoided. In all cases where the airway is involved in the operation, prompt recovery of protective reflexes is most important.

TECHNIQUES FOR ENDOTRACHEAL ANÆSTHESIA IN PLASTIC SURGERY

Induction.—It is my practice to induce all patients with a small intravenous dose of a short acting barbiturate. I have used pentothal sodium and kemithal for this purpose. This

practice is adopted because we find that this induction is the most pleasant for the patient of the procedures yet available to us. We are concerned with using an induction which is pleasant for the patient because the great majority of patients who are receiving plastic surgical treatment are faced with the prospect of several operations. Any technique, therefore, which abolishes fear of the operating room is well worth while. This technique also simplifies the approach to patients who have surgical conditions about the face which precludes the induction of inhalation anæsthesia by the usual methods.

Intubation.—Following the intravenous induction the ordinary practice is to earry on with cyclopropane, or to continue the intravenous anæsthesia with the addition of nitrons oxide, until the patient has automatic respiration and is moderately relaxed. Intubation is then done by the oral or nasal route, as eircumstances may dictate, and the tube is connected to the gas machine. If the anæsthesia is to be continued by the intravenous route with the addition of nitrous oxide, then it is advantageous to spray the larynx and upper portion of the trachea with appropriate topical anæsthetic solution.

When intubation is completed the pharynx is packed with fine mesh gauze, which is impregnated with paraffin oil or vaseline. The pharynx should be relaxed before packing is inserted, otherwise it may be forced by the pharyngcal muscles upward into the month, and the system will no longer be airtight. The pharyngeal pack is recommended in preference to any type of pneumatic cuff on the endotracheal tubc. It has been noted that anesthesia for plastic procedures should be maintained in a very light plane. The pressure of an inflated cuff on the wall of the trachea of the lightly anæsthetized patient sets up a gasping reflex which reduces the respiratory exchange of the patient, produces suffusion of the head and neek, and introduces movements which make the surgical procedure difficult.

In most operations about the nose and mouth, too, some blood finds its way into the airway. The pharyngeal pack confines this blood to the mouth, nose and upper pharynx, where it is readily recovered by suction, while the use of the inflated cuff permits soiling of the larynx and upper trachea proximal to the position of the cuff.

The pharyngeal pack must be inserted carefully and evenly on the two sides of the tube. The month may be held open by a mouth-gag. With a good light coming over his shoulder, the anæsthetist draws forward the tongue, using an ordinary right-angled tongue spatula. the patient is relaxed the epiglottis should be easily exposed. The pack is then inserted using a long pair of dressing forceps or Magill forceps. It should be placed well down into the piriform fossa on either side of the tube, and, making sure that the amount of packing is kept equal on each side of the tube, it is continned up to the dorsum of the tongue. If there is no operative procedure in the mouth it is well to lead the end forward to the front of the mouth to assist in recovery after operation.

The decision for nasal or oral intubation will often be dictated by the site and nature of the operation. It will be obvious that oral intubation is out of the question if the operation involves the mouth, chin, or neck. operations on the lips are to be performed, care must be taken to ensure that the anæsthetic equipment does not distort the nose and lip. Nasal tubes should not be used for operations on the upper lip, since these tend to distort the upper lip and the naso-labial relationship. An oro-tracheal tube fastened securely in the mid-line of the lower jaw will not produce distortion. In cases where the choice is not dictated in this way, the choice of route will depend on the preference and skill of the anæsthetist. I formerly favoured the use of the nasal route. However, I now prefer to use the oral route, since one is usually able to employ a larger tube, and laryngoscopy and the passage of a tube under direct vision, when properly performed, is less likely to produce trauma than is nasal intubation.

SPECIAL TECHNICAL PROBLEMS

One frequently meets patients with surgical conditions which make the routine procedures described above either difficult or impossible. These include patients who have large defects of the face, recent facial injuries, bulky dressings which may not be removed, or external splints of one type or another supporting fractures of the facial bones.

These patients are best handled by anæsthetizing them to the point of complete relaxation by the intravenous route and then passing the endotracheal tube immediately under direct vision, inhalation anæsthesia being commenced from that point through the tube. The use of direct vision is recommended for nasal intubation in these patients because, should the first attempt at blind intubation fail, the patient may have a troublesome spasm of both the larynx and pharynx at the next attempt. Except in those patients who have blood and debris in the airway, it is well to produce topical anæsthesia of the lower portion of the pharynx and of the larynx before attempting intubation. In those patients with blood and debris present in the pharynx this is not practical, and the tube should be passed immediately to secure the airway and to prevent aspiration of foreign material.

In addition to that type of difficulty just outlined, one is not infrequently faced with the problem of producing endotracheal anæsthesia in patients who have their teeth wired together, or their lips sutured together. These must of necessity be intubated blindly by the nasal route, but here one usually has the advantage of being able to deepen anæsthesia by inhalation from a face mask before intubation is attempted.

In a large number of operations we find that no matter how placed, the catheter adapter and the connecting tube of the anæsthetic system intrude themselves into the operative field. This is an unnecessary source of anxiety to many anæsthetists and surgeons. These pieces of equipment should be sterilized before use by boiling or by soaking in some germicidal solution. Provided, then, that the anæsthetist's hands are clean when he commences his procedure, surely the exposed bits of equipment will be at least as clean as the patient's skin. They are then "prepared" with the rest of the field before operation, and need give no more concern than the exposed skin. For the past two and a half years I have used vinyl portex endotracheal tubes, which may be boiled repeatedly with little evidence of deterioration.

I think it is accepted practice to lubricate the distal portions of endotracheal tubes with vaseline or some jelly preparation. The use of a 5% pontocaine or nupercaine ointment as a lubricant is probably useful in minimizing the tendency of the patient to cough when the head is moved during light anæsthesia, and during recovery after the tube has been removed.

CARE OF PATIENT AT CONCLUSION OF OPERATION

It is wise to remove the packing and the endotracheal tube at the conclusion of the operation before the head is moved about in the application of dressings and bandage. In cases where this is not practicable, or where it is neglected, patients frequently have a sore throat on recovery. This results from movement of the tube in the larynx, and the friction of the packing in the pharynx.

Following the removal of the packing, the pharynx should be inspected for small abrasions and those found may with benefit be painted with a 20% mercurochrome solution. It will be found that this simple treatment usually prevents a complaint of sore throat.

Before dismissing the patient, aspiration of the pharynx should be efficiently performed, removing all blood and mueus. This not only reduces the possibility of aspiration of foreign material into the lower respiratory tract, but prevents a great deal of post-anæsthetie gagging and coughing. In cases where the agent used has been other, it has a definite influence on the incidence of post-anæsthetic vomiting.

AGENTS USED

Inhalation agents. - The anæsthetic agents used should be those which produce the least postoperative unpleasantness for the patient, while providing adequate operating conditions, since many of these patients will require a series of operations. We have found that the combination of pentothal or kemithal with cyclopropane or nitrous oxide are ideal from this point of view, using barbiturate for induction only when cyclopropane is used, or throughout the operation when nitrous oxide is employed. We rarely see postoperative retching and vomiting after these combinations. Postoperative bleeding from a graft bed may be determined by postoperative straining, so there is much value in the use of these combinations of agents quite apart from consideration of the patient's discomfort.

Many surgeons profess to dislike cyclopropane anæsthesia on the ground that it is responsible for oozing in the operative field. In a series of cases some years ago we found that it was impossible for the surgeon to distinguish between velopropane and nitrons oxide-ether anæsthesia

this basis. It is probable that cyclopropane need this reputation due to accumulation of CO₂ in the closed anæsthetic system. Accumulation of CO₂ will certaintly produce bleeding, no

matter what the agent, and greater attention should be paid to this factor.

Epinephrine.—It is the common practice of plastic surgeons to inject a solution containing epinephrine about the operative field to produce hæmostasis. The concentration used varies between 1:120.000 and 1:60,000, and rarely is more than 6 to 8 e.c. of this solution injected. In no case have I seen any ill effects from this practice with any agent, including cyclopropane.

On the other hand, I cannot condemn too strongly the practice of applying packs soaked in epinephrine solution to vascular raw areas in order to produce hæmostasis. Absorption from such areas is extremely rapid, and I have seen several patients in profound shock and with completely irregular pulse in these eircumstances.

Regional anæsthcsia.—Nerve block anæsthesia is particularly useful in plastic surgery of the extremities. I believe that for operations on the tendons about the hand and wrist. regional auæsthesia is the method of ehoice. because usually one finds that motor function has returned before the end of the operation, while anæsthesia persists for a considerable time, and the patient is able to perform voluntary movements at the request of the surgeon. For repair of tendons in the palm of the hand one may produce anæsthesia while retaining full motor power by blocking the median and ulnar nerves at the wrist, providing that the surgeon is willing to forego the advantage of a tourniquet in return for the advantage of voluntary movement of the involved tendons.

In cases where the only anæsthesia required for the cutting of a skin graft, block of the lateral femoral entaneous nerve will usually provide anæsthesia over an adequate area in the thigh.

THE BURNED PATIENT

It should be stated as a rule that the severely burned patient should never be given an aniesthetic if it can be avoided. If an aniesthetic agent is necessary for treatment, it should be as short and as light as possible, and the aniesthetist must take whatever steps are necessary to remedy the physiological disturbances. before aniesthesia is induced.

The choice of agent for the burned patient is probably open to question. I have found pentothal plus nitrous oxide most satisfactory.

It should be remembered that hepatic and renal damage frequently follow severe burning, and the anæsthetist would be wise to determine the function of these organs before choosing an anæsthetie agent for a burned patient.

A special difficulty in intubation is presented by the burned patient with scar contracture about the face and neck. Such contractures may produce stenosis of mouth and nostrils and fix the ehin so that it is impossible to lift the head forward or to extend it. In such cases one must manage a blind nasotracheal intubation.

THE PROBLEM OF MUSCLE RELAXATION IN SURGERY*

Harold R. Griffith, M.D.

Montreal. Que.

THE Canadian Anæsthetists Society for its motto the Greek words, Καθευδωντας παρατηρουμεν, (katheudontas parateroumen), which might be interpreted-"We watch closely those who sleep". Nowadays, watching closely those who sleep involves more than just bringing them back alive from the operating room: it means safe sleep and safe awakening. duty of the modern anæsthesiologist comprises attention to: (1) The safety of the patient before, during and after operation. (2) The comfort of the patient. (3) Provision of the best possible working conditions for the surgeon.

The second and third duties are really corollaries of the first. We now know that comfort during operation—freedom from fear—is not just an extra luxury for private patients. Fear plus anæsthesia is a dangerous physiological combination, and the removal of fear, the promotion of comfort and calm, is one of the important factors in safe anæsthesia. Similarly, it is obvious that for good surgery one must have proper working conditions; hence the anæsthetist's duty, in the interest of the patient, to provide such conditions.

This paper deals with one phase of this third part of the anæsthetist's duty, that is, the provision of muscular relaxation adequate to permit efficient, safe surgery. To study the problem of

muscle relaxation effectively it is necessary to review briefly our knowledge of muscles-how they contract and how they relax. In the living animal muscles are in a state of tonicity or tonus. and if the nerve supply is intact, a cut muscle retracts and the two parts separate. Thus a muscle, even at rest, is in a favourable condition to contract without losing time or energy in taking in slack. Muscular tonus is under the control of the nervous system. Muscles lengthen when their nerves are divided or when they are rendered physiologically nerveless by drugs. The actual transmission of the nerve impulse from motor end plates to muscle cells is now known to depend on the presence of acetylcholine, a substance which plays such an important rôle in the translation of all nerve impulse into other phases of biological activity.

Skeletal muscle may be cut off from its nerve supply and thus rendered not only inert but devoid of tonus in one of three ways: (1) by central nervous system paralysis, in which case the paralysis must be complete enough to involve also reflex pathways in the spinal cord: (2) by severance or paralysis of the motor nerve pathway from the cord to the muscle; (3) by interference with the acetylcholine reaction at the motor end plates in the muscle itself.

We can never interfere with normal physiological function without some price being exacted from the patient in terms of metabolic upset, visceral damage, hypoxia, temporary or permanent disability, or other untoward reaction. In anæsthesia, as we attempt to secure for the surgeon adequate muscle relaxation, our problem is to choose the method for which the patient has to pay the lowest price for this physiological interference.

Let us examine the various anæsthetic agents and methods from this point of view. General anæsthesia produces muscular relaxation mainly because of its central action, the exact mechanism of which we do not yet entirely understand. The east to the patient in terms of toxicity rises in almost direct proportion to the efficiency of these agents in their fity to produce muscular relaxation. For exad in esthesia deep enough to produce complete relaxation the patient pays with respiratory irritation, metabolic upset and postoperative discomfort. For elloroform he pays with visceral and possibly cardiac damage. Deep cyclopropane, while more rapidly eliminated than ether or ehloroform, in some indi-

^{*} From the Department of Anæsthesia, McGill University, and the Homeopathic Hospital of Montreal.

Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association. Section of Anæsthesia, Banff, Alberta, June 14, 1946.

viduals endangers respiratory and cardiac function. The other general agents, inhalation, intravenous and rectal may not be so toxic in anæsthetic doses but they are not efficient relaxants. There is not much physiological cost to the patient in ordinary anæsthesia with pentothal, ethylene or nitrous oxide, but neither is there a satisfactory surgical field for most major operative procedures.

With local, regional block and spinal anæsthesia, muscular relaxation is produced because of motor nerve paralysis. The cost of this to the patient may be in untoward reactions, apprehension, and incomplete sensory paralysis. Aikenhead¹ has called our attention to the sequelæ of spinal anæsthesia. His review and the reports of many others remind us that in spite of the usefulness and wide applicability of these methods of anæsthesia they are not without danger. All of us have had personal experience with untoward reactions following the misuse of, or hypersensitivity to, local and spinal anæsthetic agents.

The third way of obtaining muscle relaxation is by interruption of the myo-neural junction. This type of paralysis has been known to physiologists ever since Claude Bernard's classic experiments with curare nearly one hundred years ago, but for our present conception of the actual physiological process involved we are indebted to Loewi's comparatively recent discovery of the rôle of acetylcholine. We now believe that acetylcholine is the chemical activator produced by electric stimuli at motor end plates, and that it causes muscle cell contraction. The presence of curare or some other curare-like drng will interfere with the acetylcholine reaction, probably by the production of a preponderance of choline esterase. The disease myasthenis gravis so closely resembles chronic curare intoxication that it is now believed that in this disease there is the same kind of interference with acetylcholine production.

Every medical student has seen curarized frogs or other laboratory animals, and we have known that the action of curare is temporary and reversible, but the conception of curare as a drug of clinical value for the intentional production of temporary muscle relaxation is something which is quite new. West, Burman, Gill, MacIntyre and Bennett were pioneers in the modern application of a purified curare to clinical medicine. In 1940 Dr. L. H. Wright of

E. R. Squibb & Sons suggested to me that curare might be the answer to the anæsthetist's prayer for a rapidly acting non-toxic muscle relaxant. In January, 1942, I began to use it in patients under cyclopropane anæsthesia. Our first report2 attracted the notice of other anxs. thetists, notably Cullen,3 of Iowa, and started developments which have brought curare now to an apparently permanent place of usefulness in anæsthesiology. Personally, I have administered "Intocostrin", the Squibb extract of standardized curare, to 800 patients, and the total administrations by others amount to many thousands, so I feel that we can begin to assess its value, particularly in regard to the physiological cost to the patient.

Is curarization a less costly means of securing adequate muscle relaxation than the use of the other agents and methods which I have described? My answer to this question is "Yes", with certain reservations. When curare is administered in proper therapeutic dosage it produces an effect of short duration, which seems to be entirely confined to the myo-neural junction. There is no demonstrable effect on metabolism, blood pressure, or visceral or cardiac function, and there are no postoperative sequela. However, when curare is given in dosage larger than that necessary to provide muscular relaxation we see evidence of the central effect which has been described by several experimental investigators.4,5 This may produce unconsciousness, respiratory paralysis, bronchial spasm, increased bronchial secretion, and slow recovery. The recent work of Cole,6 of Minnesota, on the toxicity of curare reminds us that the drug is still a poison when improperly used. He has also shown, however, that when curare is given together with oxygen and controlled respiration, doses enormously larger than those required in clinical anæsthesia may be given without permanent damage to the animal.

In my opinion the best way to produce relaxation sufficient for satisfactory surgical manipulation lies in a judicious combination of non-toxic anæsthetic agents with curare. The trend toward a mixture of anæsthetic agents is widespread, and I believe it has sound pharmacological basis. Toxicity of most agents is usually in direct proportion to the size, rate and concentration of the dose, and a combination of small doses of several agents sufficient to produce the required relaxation

is seldom as toxic as a large dose of a single one of those agents. Nitrous oxide, ethylene, pentothal or light cyclopropanc combined when necessary with curare provide relaxation sufficient for almost any surgical procedure. By this I do not mean that curare should be used routinely even in abdominal operations. our hospital we are now finding it advisable to use curare in 41% of our abdominal cases (Table I). A wide variety of combinations of

In closing, may I add one word of appeal from anæsthetist to surgeon. In recent years. by the introduction of new agents and methods. anæsthetists have done much to safeguard the patient and speed his recovery. We have interested ourselves in oxygen, in analeptics, in supportive fluid therapy: we have supervised blood banks and recovery rooms." Now we have given the surgeon curare for better muscle relaxation. It is our considered opinion that

TABLE I.

		Number ,	
•	Agents and methods	of cases	Age
	Cyclopropane (alone)	795	Pen
	Cyclopropane and curare	. 292	Pen
	Avertin and cyclopropane	. 140	Pen
	Avertin, cyclopropane and curare	. 36	Spi
	Pentothal and cyclopropane		Spi
	Pentothal, cyclopropane and curare		Spi:
	Pentothal, eyclopropane and ethylene	. 8	Spi
	Pentothal, cyclopropane, avertin and curare.	. 1	Spi
	Pentothal, cyclopropane, ethylene and curare	. 4	Spi
	Ethylene and cyclopropane		Spi
	Ethylene, cyclopropane and curare		Spi
	Avertin, ethylene and cyclopropane	. 2	Eth
	Avertin, ethylene, cyclopropane and curare .		Loc
	Nitrous-oxide and cyclopropane	. 5	Rei
	Nitrous-oxide, cyclopropane and pentothal		
	Nitrous-oxide		
	Pentothal	1	

Agents and methods	Number of cases
Pentothal and nitrous-oxide	9
Pentothal, nitrous-oxide and ethylenc	
Pentothal and ethylene	. 2
Spinal (various agents)	
Spinal and cyclopropane	
Spinal and ethylene	
Spinal and pentothal	
Spinal and nitrous-oxide	
Spinal, cyclopropane and curare	
Spinal, pentothal and cyclopropane	
Spinal, pentothal, cyclopropane and curare .	. 4
Ether	. 6
Local anæsthesia and curare (bronchoscopy)	
Refrigeration	
merificianon	. *
	3.000
Total	. 2,000

Endotracheal anæsthesia in 586 of these cases. Curare given in 20.5% of all cases.

agents and of methods has been in use during the past year. Cyclopropane, either alone or with curare, is still the agent most frequently employed, but pentothal in moderate doses and of varying concentration from 2.5% to 1:1,000 enters into many of the combinations, and we are returning to that very valuable and recently neglected agent, ethylene.

I do not wish entirely to decry the value of spinal anæsthesia; in fact we are using this method more frequently than formerly for some purposes, particularly for major gynæcology and in obstetrics. In our spinal anæsthetics we use combinations of different drugs in as dilute concentration and as small doses as we feel will give the desired result. modern anæsthesiologist should have at his command a whole array of drugs and methods which he can alter or combine in any way the circumstances of the occasion demand. Curare, when used intelligently and with discrimination, is one more safe drug to add to the anæsthetist's pharmacopæia. It does enable us to provide the surgeon with muscular relaxation sufficient for any surgical procedure and without permanent physiological cost to the patient.

slow surgery is responsible for much of the remaining physiological upset and delayed recovery of our patients. The best surgeon is the one who handles tissues gently, knows what he is doing, does it quickly, and gets out of the abdomen or chest with no time wasted in "puttering". The expert should not need "wet rag relaxation" for every laparotomy. Good anæsthesia with non-toxic agents, plus speed, and friendly collaboration between anæsthetist and surgeon, is the ideal combination for safe surgery.

REFERENCES

1. AIKFNHEAD, D. C. Canad. M. A. J., 52-162, 1945

2. GRIFFITH, H. R. AND JOHNSON, G. E. Anasthesiology, 3:418, 1942.

3. CULLEN, S. C. Surgeru, 14: 261, 1943

4. WHITACKE, R. J. AND FISHER, A. J. Anasthesiology, 6: 124, 1945.

5. PICK, E. P. AND UNNA, K. J. Pharmacol, 83: 59. 1945.

6. COLE, F. Anasthesiology, 7, 190, 1946

7. GPIFFITH, H. R. AND MACMILLAN, M. Canad. Hospital, April, 1946.

RÉSUMÉ

Le curare administré avec un agent ancethésique non toxique semble amener le relâchement musculaire idéal. Ce produit, administré comme il convient. n'offre pas de danger sérieux. Avec les seuls anes-thésiques connus il faut parfois atteindre des doses trop fortes pour la sécurité du malade si l'on veut obtenir le relâchement désiré par le chirurgien. Toutes choses égales d'ailleurs, on obtiendra les meilleurs résultats quand le chirurgien sera un opérateur averti, rapide, soigneux pour les tissus et offrant à l'anesthésiste les garanties d'nne amicale collaboration. JEAN SAUCIER

PHLEBOTHROMBOSIS AND ITS TREATMENT*

Edward S. Mills, M.Sc., M.D., C.M., F.R.C.P.[C.]

Montreal, Que.

VENOUS thrombosis and embolism or thromboembolism is beyond doubt one of the most important and dreaded complications of immobilization, whether this depends on surgical procedures or illness necessitating prolonged bed rest. It is found in 11½% of all those who die within a month of a surgical procedure, and in nearly half of these it is the main cause of death.¹ It kills about 5% of those who recover temporarily from an attack of coronary thrombosis. It may strike down the apparently healthy without warning and without apparent cause. Let me cite one or two instances.

A university professor notices some pain in the calf at the end of a game of squash. He limps home and tells his wife he has a "charley horse". There is no swelling of the leg, only a little tenderness in the ealf. The leg is slightly tender for a week. Suddenly without warning there is an agonizing pain in the chest, followed by a short period of eyanosis and difficult breathing. Before a eolleague can be reached embolism has claimed another vietim.

The second instance is that of a vigorous man beginning to experience some prostatic obstruction. He enters the hospital for investigation, is cystoscoped, and is examined by an internist who pronounces him quite fit for prostatectomy. The day prior to operation he suddenly cries out with pain in the chest, gasps once or twice and thereafter the story is told by the pathologist. In this case there is no warning leg pain; no single symptom to proclaim the existence of a fragile thrombus in the pophreal vein.

Statistics indicate that 95% of all major emboli to the lung come from one of the veins of the lower extremities.

CAN THIS TYPE OF PHLEBOTHROMBOSIS BE PREVENTED?

Obviously the solution of this problem carries with it the answer to the second, namely the prevention of embolism; no phlebothrombo-

sis, no embolism. The only practical approach is to serutinize all individuals beyond middle life who must be immobilized for a period of time and to treat them as if they'were potential Unfortunately our methods of this victims. type of seveening are extremely inadequate. Only a percentage of those who will later develop phlebothrombosis will show demonstrable alterations in (a) the eirenlation time, (b) the prothrombin time, (c) the vascular endothelium. Nevertheless, in the ease of every individual beyond the age of 40 years who must be immobilized for any considerable period of time an attempt should be made to evaluate these factors.

Where doubt exists, measures should be instituted to prevent the possible development of phlebothrombosis. The following is a partial list of conditions likely to lead to phlebothrombosis: (1) Coronary thrombosis; (2) prolonged infections in elderly patients; (3) heart disease with congestive failure; (4) surgical conditions such as leg or spine fractures, heuniotomy, gynecological operations; (5) a past history of phlebothrombosis. It has been estimated that there is a 40% risk of further thrombosis or embolism occurring in immobilized patients with a history of thrombosis or embolism, and of these about 10% will die of fatal embolism (Barker, Mayo Clinic).

WHAT ARE THE METHODS USEFUL IN THROMBOSIS?

- (a) Reduction in the period of bed rest.— Patients should be allowed ont of bed as early as is consistent with the progress of the disease for which they were put in bed, or as soon after an operation as their strength will permit.
- (b) Maintenance of muscle tone.—The mainnance of muscle tone in patients confined to bed may be accomplished by passive and by active motion. Where active movement of the limbs is possible, the patient should be encouraged to carry out daily exercises which in addition to improving muscle tone increase the circulation rate. Where these exercises are impossible daily massage and passive movements are desirable.
- (c) Posture.—The mattress of hospital beds is said to exert such pressure on the popliteal space that the venous circulation is impaired when the mattress and frame are raised to hold the patient in the semi-recumbent position. This danger can be avoided.

^{*}Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Medicine, Banff, Alberta, June 12, 1946.

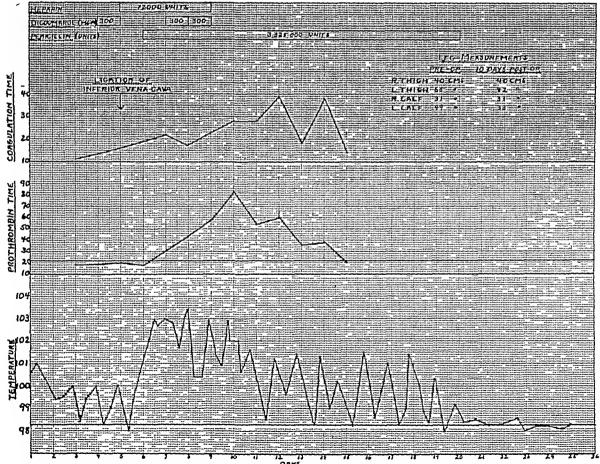
(d) Inherent clotting tendency.— When a tendency to elot exists at the beginning of a period of prolonged bed rest—and a coagulogram should always precede such a period, especially in elderly patients—then measures should be adopted to modify this tendency as soon as conditions permit: in medical cases without any delay, in surgical cases after the 3rd or 4th day. This is a safe delay as nearly all serious vascular accidents of an embolic nature oceur at a later period.

Heparin and dicoumarol both inhibit clotting. The effect of heparin is best demonstrated by the coagulation time; the effect of dicoumarol by the prothrombin time. Where immediate results are desired heparin should be given intravenously and dicoumarol by the oral route. The maximum effect of the heparin will take place within an hour, the dicoumarol by the third or fourth day. By combining the two drugs and stopping the heparin when the dicoumarol has taken effect any desired delay

in clotting of the blood can be obtained and maintained. In most instances a coagulation time level of 20 to 25 minutes or a prothrombin time of 30 to 40 seconds is the optimum. Little or no danger of untoward hæmorrhage may be anticipated unless these levels are exceeded.

THE TREATMENT OF VENOUS THROMBOSIS

Once phlebothrombosis has manifested itself—and the site is invariably the deep veins of the lower extremities—what measures should be employed to prevent pulmonary embolism? These are in the main two: ligation and anticoagulation therapy. Incidentally, any pain or tenderness in the calf of the leg, however slight, coming on while the patient is in bed must be regarded as a phlebothrombosis until proved otherwise. Homan's sign—pain in the calf when the foot is dorsiflexed and the calf muscle placed under tension—is probably the most valuable sign of thrombosis in the deep



THROMBOPHLEBLITIS OF LEFT COMMON ILIAC VEIN WITH THROMBOSIS EXTENDING INTO THE INFERIOR VENA CAVA.

TREATED BY LIGATION OF INFERIOR VENA CAVA, HEPARIN AND DICOUMARDL WITH PROMPT CLINICAL IMPROVEMENT AND COMPLETE GURE.

veins of the ealf. Indeed it is often the only sign present.

1. Femoral ligation.—There are clinics in which ligation of the femoral veins distal to the profunda invariably precedes a major operative procedure, and others in which the vein is tied as soon as phlebothrombosis is suspected. Such a course would seem to be unduly radical and yet there are probably few physicians who have ever regretted ligating the femoral vein above the thrombus and many who have watched a patient pay the supreme price for their indecision.

Permanent cedema of the leg following femoral ligation distal to the profunda is rare. On the other hand, extreme edema resulting from phlebothrombosis may disappear following ligation as in the ease of a recent patient at the Montreal General Hospital whose inferior vena cava was ligated to stop an ascending phlebothrombosis. Chart 1 shows graphically relevant details in this ease. The patient a 35-year old male was admitted to the hospital with fever, chills and great swelling of the left leg. Examination revealed a phlebothrombosis extending from the deep veins of the calf into the pelvis. The patient was given dieoumarol and heparinized. Because the thrombus had extended beyond the left common iliae into the inferior vena cava, the latter was ligated just proximal to the end of the thrombus. The leg measurements detailed on the chart show that no swelling appeared in the unaffected leg after ligation and that the swelling of the aftected leg almost completely disappeared within 10 days. A second and similar case has since been observed with equally satisfactory results.

2 Heparin and dicoumarol. - Heparin and dicoumard may supplement ligation or they may be employed alone to prevent the building up of a thrombus. The practical aspects of heparin and dicoumarol therapy are these. Heparin has an immediate effect but it must be continuous intravenous injection or in an oily suspension parenterally. Its effect stops almost as soon as its administration is stopped. Diegumarol is given by mouth. Its maximum effect on the prothrombin time is delayed 48 to 72 hours but continues for about 10 days. Its effect cannot be counteracted adequately or quickly but the effect of overdosage can be modified by transfusion or very large doses of vitamin K.

Another disadvantage of dicoumarol therapy is the variability of effect. The usual dosage is 300 mgm. stat. and 200 mgm. the following Subsequent doses must depend on the effect of these first two. No further dicoumard is given until the prothrombin time curve starts downwards, then the 200 mgm. dose is repeated. Individual variation in effect renders daily prothrombin times almost a necessity. How. ever, by means of these two drugs any desired retardation of blood clotting can be obtained and maintained almost indefinitely. If the level is within therapeutic limits no fears need be entertained that hemorrhage will occur unless there is an open ulcerating surface. The following tables have been compiled by Barker.2 They synopsize the results of this form of therapy at the Mayo Clinic.

TABLE I.
POSTOPERATIVE THROMBOPHLEBITIS
(From Barker)

	Control group No anticoag.		Dicumarol group	
•	Number	%	Number	ç; 70
Total cases	897	100.0	\$3	100.0
Subsequent episode of thrombophlebitis	95	10.6	2	2.4
Subsequent fatal pulmo- nary embolism	51	5.7	0	0

TABLE II.

POSTOPERATIVE PULMONARY EMBOLISM AND INFARCTION
(From Barker)

	Control group No anticoag.		Dicumorol group	
	Number	%	Number	%
Total cases	678	100.0	111	100.0
bosis, pulmonary em- bolism or infarction	297	43.8	2	1.8
Subsequent fatal pulmo- nary embolism	124	18.3	0	0

MASSAGE AND ACTIVE AND PASSIVE MOVEMENT

Massage and active and passive movement may be recommended without fear once the vein has been ligated, but should under no consideration be permitted if the vein has not been tied. It is the part of wisdom to exercise the limbs of a bedridden patient before phlebothrombosis develops, but it is an act of folly to permit it once the thrombus has formed. As a general rule the original thrombus is fairly well fixed to the wall of the vein but from it a propagating platelet thrombus often builds up in the circulating stream of blood free

SHIELDS: ANÆSTHESIA

except for its fixed end. Movement will tend to break this off. Here is some statistical support of this.3

TABLE III.

	Non-exercised group	Exercised group
Cases	200	200
Leg or thigh vein thrombosis. Fatal pulmonary embolism	118 7	88 11
Not-fatal pulmonary embolism Total pulmonary embolism	2 1 31	28 39
Percentage pulmonary embolism	n 26.2	44.3

It is clear from these figures that exercise, however desirable in preventing phlebothrombosis, is definitely not the treatment of choice once it has occurred.

SUMMARY

The incidence of phlebothrombosis can be lessened by reducing the period of bed rest for elderly patients, by a planned schedule for daily movements either active or passive and by the judicious use of heparin and dicoumarol in patients who show a tendency to thrombosis. The presence of a phlebothrombosis calls for early ligation of the vein above the thrombus, in conjunction with heparin and dicoumarol therapy.

The author gladly acknowledges his indebtedness to Ayerst, McKenna and Harrison for financial assistance in investigating the problem of thrombosis and embolism.

REFERENCES

- McCaftney, J. S.: Postoperative pulmonary embolism, Surgery. 17: 191, 1945.
 Barker, N. W.: The use of dicoumarol in surgery, Collect. Papers Jlayo Clinic, 35: 414, 1944.
 Hunter, W. C., Drygier, J. J., Kennedy, J. C. and Sneeden, V. D.: Surgery, 17: 178, 1945.

ANÆSTHESIA IN THORACIC SURGERY*

H. J. Shields. M.D.

Toronto, Ont.

OPERATIONS necessitating an open chest are now commonplace. The thoracic approach to such structures as the esophagus, the sympathetic ganglia, and the vagus nerve, and for the repair of diaphragmatic hernix has become With a normal pulmonary system, popular. patients will tolerate even lengthy procedures with one functioning lung only and when at the conclusion of the operation the collapsed

lung may be reinflated, convalescence comparable to that of other major operations may be expected.

Anæsthesia in these instances ordinarily presents few difficulties. When, however, the lung is the site of operation the problem from the standpoint of anæsthesia is more compli-Over a period of years the technical details of the operations of lobectomy and pneumonectomy have been perfected to the point where these procedures may be carried out in a satisfactory manner even in the more difficult cases. In the same period of time improvements in anæsthetic methods have been developed which have overcome some of the difficulties associated with this type of surgery. In many respects the problems confronting the anæsthetist are more complex than those facing the surgeon and it is to be regretted that a few of these at least have not as yet been satis-It must be admitted that factorily solved. some of the fatalities following these operations are due to circumstances more closely related to the anæsthesia than to the surgical manipulations, and in these instances there may be some truth in the quip that the operation was a success but the patient died.

In the presence of an open pneumothorax the burden of maintaining adequate oxygenation and of eliminating certain waste products rests upon one lung only. This organ is somewhat handicapped by the position it occupies when the lateral decubitus is adopted, as is usually the case. It may be readily appreciated that under these circumstances interference with free exchange of gases will establish the ill effects of oxygen deficiency and earbon dioxide accumulation in a short period of time. The most frequent cause of impairment of respiratory function is the collection of pulmonary secretions at some point in the bronchial tree of the functioning lung. Respiratory depression from the injudicious use of sedative drugs, spasms of coughing, breath-holding as a result of intercostal muscle spasm or bronchospasm, paradoxical respiration and mediastinal shift are conditions which challenge the ingenuity of the harassed anæsthetist. Any of these circumstances may transform in a few short minutes a patient hitherto in good condition into one verging on a state of circulatory collapse. It is imperative that these complications be prevented or that they be remedied as they arise without delay. Only when these

^{*} Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Anæsthesia, Banff, Alberta, June 12, 1946.

aims are satisfactorily accomplished, will anæsthetists feel that their efforts have kept pace with the surgical progress in this field.

This communication is an effort to draw attention to the difficulties likely to be encountered in anæsthesia for surgical procedures involving the lung and to discuss measures which are helpful in obviating or dealing with them as they occur.

PREOPERATIVE PREPARATION

Careful management of the immediate preoperative period will lighten the burden placed on both the surgeon and the anæsthetist during the operative procedure that is to follow. Prolonged drainage with the patient in an inclined position and postured in the manner most effective in clearing secretions from the diseased area should be undertaken when sputum is abundant. Preoperative sedative drugs should be withheld until the patient reaches the operating theatre, so as to eliminate a period during which sputum may accumulate because of a dulled cough reflex. This medication may then be administered intravenously with a period of at least five uninutes clapsing before anæsthesia is induced. It must not be excessive. Morphine sulphate gr. 1/6 or pantopon if preferred, combined with hyoseine or seopolamine gr. 1/200 is adequate when seeretions are likely to be a factor. When there is little or no sputum, greater degrees of preoperative depression are permissible, particularly in robust individuals. The addition of a barbiturate in small dosage is generally preferable to an increase in the amount of morphine or drugs of that nature. It is not necessary to state that the operation should not be undertaken until the local and general conditions of the patient are the best that can be expected.

CHOICE OF ANÆSTHETIC

Much has been written concerning the selection of the anæsthetic agent or method for these patients. Some groups prefer a form of regional block and there are good arguments in favour of a conscious patient. Despite an open chest, secretions may be cleared with a considerable degree of effectiveness in most instances, even with spinal anæsthesia. A paravertebral or intercostal block is, however, a major procedure in itself, and is not acceptable to many of these invalids. Spinal anæsthesia is not an exact science with respect to precision in control of levels and should a too extensive motor nerve block result, a serious situation develops if

effective coughing efforts cannot be maintained. Further, on occasion the analgesia may wane before the operation can be completed. It appears that many of those anæsthetists formerly advocating spinal anæsthesia have returned to inhalation methods, particularly as new agents appeared and techniques in general improved. It is quite possible, however, that in operations such as the drainage of a large lung abscess, some form of regional block is indicated. When spinal anæsthesia is undertaken, techniques designed to preserve motor root effects to the greatest possible degree are desirable.

Cyclopropane, a potent agent, permitting high oxygen percentages in the anæsthetie mixture and in general not stimulating to the glands of the bronehial unueosa, is used to the exclusion of all others by many anæsthetists. This anæsthetic, however, depresses reflex activity to a moderate degree only even at comparatively deep anæsthetie levels and intubation of these "broneho-sensitive" patients is prone to set up spasms of eoughing with which is associated bronehospasm and intereostal muscle rigidity both of which may be severe. The term "bucking" has been applied to and is descriptive of this complication. Several minutes may clapse before proper breathing can be restored, during which time forcing oxygen into the lungs is not easy. Manipulations near the root of the lung on the part of the surgeon at a later and possibly a critical point in the operative procedure may change the position of the catheter relative to that of the trachea, and without warning similar episodes involving the same train of circumstances may be engendered.

I agree with those who take the position that in many instances the addition of ether to the anæsthetie mixture is a justifiable measure. There is not much evidence that ether promotes bronchial secretion or that its use in thoracic surgery is followed by an increase in the ineidence of postoperative complications of, a pul-Cyclopropane - ether - oxygen monary nature. mixtures permit intubation without incident. Ether is mildly stimulating to respiration and when added to eyelopropaue mixtures tends to reverse the depressant respiratory effects of that Excellent results have been reported from elinies employing ether-oxygen techniques exclusively. It is possible, however, that its use is undesirable in patients suffering from active pulmonary tuberculosis.

Other methods are of value in some eireumstanees. A nitrous oxide-oxygen-eurare combination suggested recently is of particular usefulness when the surgical condition requires the employment of high tension electrical currents or the actual cautery. In general, nitrous oxide, though innocuous, is not a satisfactory agent for patients handicapped from a pulmonary standpoint. Intravenous barbiturate anæsthesia has little place in intrathoracic surgery. presses both respiratory and circulatory function and a single eoughing incident particularly during induction may initiate laryngospasm and breath-holding following which undesirable outpouring of mucous secretions is prone to occur. Chloroform as an adjuvant to other agents will be useful on occasion.

In the selection of anæsthetie it is logical to choose the one appearing to be most suitable to the individual patient. The depressed or debilitated subject may be managed comfortably with eyclopropane. The more robust or the highly sensitive individual may require the addition of ether in order to secure the tranquillity so desirable during the early stages of these operations. Some patients are best managed with a form of regional anæsthesia. The use of diathermy necessitates a non-inflammable anæsthetic mixture.

ANÆSTHETIC METHOD

Whatever inhalation agent is chosen, the elosed earbon dioxide absorption technique, either the to-and-fro or the eircle filter, offers advantages not found in other methods. The practice of intubation is agreed generally to be Oral is preferable to nasal indispensable. intubation, in which compression of the eatheter at some point in the nasal passage interferes not only with the airway but with the free passing of the suction eatheter. The endotracheal tube ensures good exchange at all times and provides a means for the removal by snetion of the pulmonary secretions which constitute the major sonree of the complications arising during these operations. It permits the application of positive pressure and eontrolled respiration when these measures are indicated. The incidence of paradoxical respiration and mediastinal instability, complications due mainly to the failure to maintain conditions permitting free ingress and outflow of anæsthetie gases, is materially reduced. The catheter should be large enough to comfortably

fill the space between the vocal cords. An inflatable cuff is preferred by many anæsthetists but carries the disadvantage that on inflation troublesome reflexes may be engendered unless, the anæsthesia is relatively deep. A short eatheter without the cuff used in conjunction with a small closely fitting face mask appears to be equally satisfactory. The mask may be removed when suction becomes necessary.

There is little tendency for anæsthetic gases to be forced into the stomach under these conditions even during the application of positive pressure. Endobronchial intubation and the use of a suction eatheter equipped with an inflatable cuff, the latter a measure advocated by Magill, are of definite value in some instances. These procedures require manipulations of a highly technical nature and are likely to be successfully carried out only by those skilled in bronchoscopic procedures in general. Future researches in these directions may be the means of solving some of the problems still causing concern to the anæsthetist interested in thoracie surgery.

CONDUCT OF ANÆSTHESIA

All the resources available to the anæsthetist should be utilized in the endeavour to conduct anæsthesia without untoward event in these patients handicapped by pulmonary disease and by an open pneumothorax. Inadequate ventilation of the single functioning lung from any cause brings about rapid deterioration in the patient's general state. Oxygen deficiency and earbon dioxide accumulation lead to an exhausting hyperpnæa with which is associated an increase in bronchial secretions. Cardiae function during the remainder of the operation may not again be restored to its former efficiency even though these episodes be of short duration only. A smooth induction is therefore essential and of the agents available eyelopropane being potent and bland is close to being ideal for bridging this hazardous period.

When it is desirable to continue its use throughout the entire operation unfortified by other agents, deep anæsthesia preferably with controlled respiration will reduce to a minimum the reflex disturbance caused by intubation. When ether is to be the main agent, the transition period must be managed carefully if irritation is to be avoided. As soon as intubation

has been accomplished, thorough suction through the endotracheal tube, previously lubricated on its inner aspects, should be carried out. suction catheter must be of a calibre sufficiently large to permit the aspiration of tenacious sputum but not of a diameter that will prevent ingress of air around it at all times. Collapse of the lung can be a consequence of an overly large suction tube. In bilateral disease posturing the patient on his operative side for a few moments may drain sputum from the lung which is to function during the operation. It is profitable to lighten the anæsthesia to the point at which a cough or two is permitted, which manœuvre may bring deep secretions within reach of the suction catheter.

Excessive coughing activity is seldom encountered under these circumstances either with ether anæsthesia or with cyclopropane when controlled respiration is in progress. I am of the opinion that complete obliteration of the cough reflex throughout the entire operative procedure is not necessarily sound practice. It is commonly noticed that following a single coughing effort sputum will be projected into the brouchus or trachea. Escape of the secretions into the functioning lung may be prevented, provided that aspiration is undertaken promptly. It has been my experience that pneumonia in the contra-lateral lung is relatively uncommon in these cases following spinal anæsthesia in which conghing is the only means by which secretions may be evacuated.

As the chest wall is being opened thorough suction should be resorted to in order that the secretions expressed from the collapsing lung may be removed. Fresh manipulations on the part of the surgeon at other points in the operation require similar action. It is essential that there be no interference with the ventilation of the single functioning lung; preserving an adequate pulmonary exchange is one of the principle duties of the anæsthetist. Any lessening in the excursions of the breathing bag must be investigated promptly. When suction through the catheter is not effective in restoring the necessary tidal volume, a change in the position of the endotracheal tube may improve the situation. Pushing the catheter into a bronchus may allow the suction catheter to reach the source of the obstruction. When these efforts fail, manual pressure on the breathing bag is an aid to better pulmonary exchange. trolled respiration and some degree of positive

pressure may be necessary to prevent the initiation of paradoxical respiration and mediastinal shifting which so often follow in the wake of periods of distressed breathing. It is good practice to halt the operation at short intervals to permit the anæsthetist to inflate momentarily the collapsed lung which otherwise may become edematous.

Positive pressure anæsthesia should be main. tained for short periods of time only, for if prolonged, embarrassment of the circulation may follow, possibly because of derangement of the negative phase of respiration. During the closure of the chest wall in the operation of lobectomy moderate degrees of pressure are required in order to re-inflate the remaining portions of the collapsed lung. Anæsthesia should be lightened during the later stages of all intrathoracic operations in an effort to ensure the early return of the cough and other reflexes. The patient anæsthetized with ether during the early period of the operation will not be subject to troublesome reflexes or nausea when a change to eyelopropane is made. It is desirable also when controlled respiration with cyclopropane has been in progress to restore normal breathing during closure so that an estimate may be made of the tidal volume before the operation is completed.

When bilateral disease is present, damming up of sputum in the contralateral lung may occur during the operative procedure. In other instances, secretions may escape the suction catheter and so reach the sound lung. When the dressings are in place, reversing the position of the patient on the table, and raising and lowering the head with the suction catheter constantly in action are measures often effective in removing the offending material. At this point the patient will resent the catheter and will cough vigorously if the anæsthesia has been When in spite of these properly lightened. measures the administration of high percentages of oxygen is necessary to keep the patient a good colour, further action is indicated. Some part of either lung may not be functioning, most likely because of a blocked bronchus. collapse of the area involved almost certainly has taken place at some period during the The necessity of maintaining inanæstlicsia. ordinately high oxygen percentages in the auxsthetic atmosphere during the later stage of the operation will warn the anæsthetist of the probable existence of this complication. In this case

he will maintain anæsthetie levels which will permit the passage of the bronchoscope at the close of the operation. Placing the patient in a high oxygen atmosphere is not a substitute for bronchoscopic drainage under these conditions. Patients in whom secretions have been a factor should be placed in their beds in a lateral headdown position with the sound side uppermost, for a period of some hours.

Anæsthesia in thoracoplasty is less eventful than in the intra-thoracic operation. these patients are suffering from pulmonary tuberculosis of an active nature, anæsthesia should be conducted with the particular view of creating the least possible disturbance, mechanical or irritative, to lung tissues. Anæsthesia with cyclopropane during which little increase in respiratory rate and depth is evident, appears to be reasonably satisfactory so far as spread of disease is concerned. Patients requiring thoraeoplasty are chronic invalids and are subjected to operation only after long periods of inactivity. In general they are not difficult patients for anæsthesia. There is some difference of opinion as to whether intubation should be practised as a routine measure. No matter how carefully anæsthesia is induced. passing the eatheter is prone to stir up reflex activity which could be instrumental in spreading the infection. Adding other to the mixture to the degree that reflexes are abolished is a procedure open to question. Many patients do surprisingly well without the endotracheal tube.

Some degree of laryngospasm is a common occurrence, generally arising when the periosteum is being stripped from the ribs. Complete closure of the glottis in most instances will not result with eareful management of the When, however, this complicaanæsthesia. tion, occurs and when manual pressure on the breathing bag does not force oxygen beyond the obstruction, the anæsthetist finds himself in an extremely difficult situation. Intubation with the patient in the lateral position is not casy although it may be accomplished. olive-tipped gum clastic catheter is useful in this eircumstance and will provide a temporary airway. It is imperative that some degree of gaseous exchange be established without delay. Not only is the need for oxygen particularly urgent in these individuals but collapse of the lung due to the absorption of oxygen and cyclopropane beyond the larynx, will result unless the obstruction is overcome. Paradoxical respiration may be generated by moderate degrees only of laryngospasm in those patients having had ribs removed at previous operations.

Pressure on a large pack, exerted by the hand of one of the surgical assistants over the weakened area of the chest will help to overcome this complication. Anæsthetists using cyclopropane for thoracoplasty must make the choice as to the advisability of intubation. Except in subjects likely to be difficult I prefer at the moment to accept the risk of laryngospasm rather than to intubate all patients, or to use ether. The addition of helium to the anæsthetic mixture will be of some value when the use of the catheter is not anticipated.

Other methods of management may be equally or possibly more satisfactory. Intravenous anæsthesia with a barbiturate when the pulmonary disease is not extensive has some advocates and may be of value particularly when reinforced by nitrous oxide, cyclopropane or curare. Spinal anæsthesia is being employed by well qualified observers. If it can be shown that there is less spread of the tuberculous disease in the lung, the risk involved in a subdural block adequate for the first stage operation, may be justified.

In thoracic surgery demands greater than usual are made upon the skill and patience of the anæsthetist. The main problem is that of maintaining adequate pulmonary function in the presence of a vital capacity seriously impaired by disease and by the operative manipulations. The operations are long and are productive of considerable blood loss and shock. The necessity of supportive measures is obvious; therapy of this nature should be commenced before the incision is made. The anæsthetist must be on the lookout for cardiac disturbances due to reflex parasympathetic overactivity in the event of which an immediate block at the hilus of the lung is indicated. He must accept the responsibility of the decision as to whether respiratory function at the conclusion of the operation is such that the patient may be returned in safety to the ward without further interference. Anæsthetists engaged in this work might well familiarize themselves with the use of the bronchoscope. In few other procedures does the anæsthetist bear so great a share in determining the success or failure of the surgical cffort.

BONE LESIONS ENCOUNTERED DURING INFANCY®

Arthur E. Childe, M.D.

Winnipeg, Man.

MANY abnormalities are to be found in the bones of infants and in this short presentation it will only be possible to mention a few of the more common and interesting.

RICKETS

This is still the most frequent lesion in spite of the fact that the cause is well known to be a deficiency of vitamin D in the food and lack of exposure to ultraviolet radiation. It is evidently more apt to occur in the coloured race and certainly develops earlier in premature than in full term infants. The bone changes lag behind the biochemical changes by several weeks and are rarely evident before 3½ months of age. They are best seen at the ends of the long bones where growth is most rapid.

The eostoehondral junctions are very valuable for pathological study but they are relatively poorly shown in radiographs, and the knee and wrist are the regions most frequently studied. The earliest changes are often visible at the distal end of the ulna and it may be eonsiderably later before comparable abnormalities appear at the distal end of the radius At the elbow where or around the knee. growth is very slow, changes appear very late Inadequate ealeification of newly formed eartilage and bone with continuing physiological decalcification of the bone and cartilage which was ealeified prior to the development of the rickets constitute the cardinal features. Hence the normal white lines at the ends of the shafts of the bones become rarefied and frayed and ultimately disappear. Cupping may develop particularly at the distal end of the ulna and at both ends of the fibula. It is less likely to appear at the distal end of the radius and at the distal end of the femur or the proximal end of the tibia, probably because these regions are normally somewhat convex. Slight cupping of the ulna may be present in normal infants and eupping per sc is not diagnostic of rickets for it also occurs in scurvy.

As the disease progresses the changes at the ends of the bones become more evident and where epiphyseal centres are ossified, such as at the distal end of the femnr and the proximal end of the tibia, apparent separation between the end of the shaft and the epiphyseal centre develops due to the presence of osteoid tissue (hone without ealeium). At the same time the shafts of the bones become abnormal. Their radiographic density decreases, the cortices become thin and trabeculations appear coarsened Fraetures of the greenstick variety are not at all unusual and may produce considerable deformity, even though they seem to cause little pain. The epiphyseal centres also become demineralized and lose their normal white outlines and in extreme eases they may practically disappear.

If the rickets is of the so-called hypertrophic variety there is usually more deformity of the long bones than there is in the atrophic variety. In the former the activity of the infant is not so markedly restricted and the bones suffer from more stress and strain than they do in the latter where comparatively little movement is attempted.

When healing occurs, the first change usually noted is the appearance of ealcification in the région of the zone of provisional ealcification. This may appear to be some little distance from the end of the shaft of the bone, particularly in marked rickets, due to the fact that osteoid tissue and not bone is present between the epiphyseal plate and the ossified shaft. This osteoid zone will gradually become recalcified and bridge the Similar reealeification occurs apparent gap. around the epiphyseal centres and the shafts of the bones gradually return to normal although at a slower rate. The new bone which forms will be normal if the vitamin intake is continued, but the old shaft may retain coarsened trabeculations for months and remain visible in contrast to the new bone particularly near the point where they join.

Knock knees, bow legs, etc., commonly result from rickets. If the bending is not too extreme, subsequent growth, and the laying down of the new bone on the coneave aspects of the shafts will overcome the deformity. Ostcotomy may be necessary, when marked deformity must be corrected but fortunately such eases are now reasonably rare. The rachitic sabre shin consists of forward and lateral bowing of the tibia and of the fibula to a lesser extent usually in their

^{*}Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Radiology, Banff, Alberta, June 12, 1946.

lower thirds. It can be distinguished from the luctic sabre shin by the fact that the bones are bent, with cortical thickening on their concave aspects, whilst in lucs the tibia is straight and the sabering is due to new bone formation.

INFANTILE SCURVY

This results from a deficiency of vitamin C in the diet. It is nearly always seen in infants who have been fed on boiled eow's milk and who have not received orange or tomato juice. many instances the dict has otherwise been quite good, although at times it may have been very deficient. The essential features as seen radiologically are due to the suppression of normal cellular activities, both productive and destructive whilst non-eellular activities such as the deposition of lime in the epiphyseal plate and internal resorption of the cortex and medulla are not interrupted. It is commonly diagnosed between the ages of seven and eleven months but oceasionally may be found as early as six months and sometimes as late as two years.

The roentgenological changes are best seen in the long bones where growth is most rapid. There is accentuation of the white lines at the ends of the shafts of the bones, accentuation of the white lines around the epiphyscal centres and also thinning of the cortices, with general demineralization of the shafts-"ground glass" bones. These findings alone are not specific for scurvy, being also present in other conditions, but when subperiosteal cortical fractures occur near the ends of the bones, with adjacent defects in the cancellous structure, the so-ealled "corner sign" is present and the appearance is diagnostic. Later on there may be submetaphyseal rarefaction and also fragmentation of the zone of provisional calcification with lateral spur formation. An epiphyseal centre may be displaced by fracturing through the zone of provisional ealcification or may be impacted into the brittle end of the shaft with resulting "cupping". Subperiostcal hæmorrhages often oecur but are shown only as soft tissue swelling until healing commences. They may be small and ineonspicuous or very large and eompletely envelop the involved bone, but they almost invariably end at the epiphyseal line where the periosteum is firmly attached. If a hæmorrhage is situated between two bones such as the tibia and fibula it may spread them apart.

The clinical improvement following the administration of vitamin C is most dramatic, so that

in a few days the infant seems well, but the bones improve more slowly. Gradually solidification occurs at the ends of the shafts, bony spurs unite and eorner signs disappear. shafts slowly become more normal in density and subperiosteal hæmorrhages, if present, organize and ossify and then gradually shrink. The new bone which forms at the end of the shaft after treatment, is normal, and the margin between this and the seorbutie portion of the shaft usually remains evident for some time. The old rarefied epiphyseal centres become buried in normal new bone but may be visible for years. If an epiphyseal centre becomes displaced, growth in length occurs from its new position and the shaft behind this adapts itself to the deformity so that there is rarely any serious after effeet.

CŒLIAC DISEASE

Here there is general demineralization of the bones with accentuation of the white lines at the ends of the shafts and around the epiphyseal centres. However, there is no submetaphyseal rarefaction and corner signs, spurs and subperiosteal hæmorrhages are not present. In England it is likely to be associated with rickets, but in North America this seems rare.

CONGENITAL LUES

Not all luetic infants can be shown to have bony abnormalities at any one examination so it is never possible to exclude lues by radiographic means. On the other hand many new born infants with luetic mothers who have received treatment during pregnancy have positive Wassermann tests which later become negative. Whilst it is highly desirable to treat luetic infants as early in life as possible it is almost equally desirable not to treat non-luetic babies. Consequently, even though the Wassermann be positive, if there are no elinical signs of lues and the bones are normal most observers feel that treatment should be deferred for the time being.

The radiographic evidence of lues is most conclusive in the first few months of life when rickets and scurvy should eause no confusion. Characteristically multiple lesions are present, being roughly symmetrical on the two sides. Nearly all syphilitic infants have some disturbance of the white lines at the ends of the shafts of the long bones, but some of these changes are not at all specific for this condition. When

of the arms are swollen in their mid portions and taper towards their ends.

HEREDITARY DEFORMING CHONDRODYSPLASIA OR MULTIPLE EXOSTOSES

This condition is hereditary in more than half of the cases. Not only are there exostoses present but there is often shortening of some of the bones, particularly the fibula and ulna, with resulting deformity of the wrist and ankle Frequently the exostoses are larger around the knees, but they may arise almost anywhere in the body except the skull. In one case which we have followed the bones were normal at birth and almost normal at 12 months, although later in life typical marked deformities appeared. The father and several other members of the family were similarly affected. Growth of these exostoses tends to ccase when the patient becomes full grown, but malignant degeneration occasionally develops later in life.

INFANTILE CORTICAL HYPEROSTOSES

This is a syndrome recently reported by Caffey of New York, possibly due to a virus infection or allergic reaction. The primary complaint of tender swelling occurs in the first few months of life and fever is usually present although there is comparatively little systemic These swellings come on rapidly but subside slowly. There is no evidence of scurvy or lues. The skeletal changes involve multiple bones and consist of thickening of the cortex. In the lower extremities this thickening does not extend to the end of the shaft but in the upper extremity it may. There is quite often involvement of the clavicles and mandible. I am greatly indebted to Drs. Mac Edmison and Bruce Chown of the Children's Hospital in Winnipeg for allowing me to see the radiographs of a case that they have recently studied. Interestingly enough their infant came from the far North, where an unusual infectious process would seem unlikely.

438 Waterloo St.

PENICILLIN IN THE TREATMENT OF SINUSITIS*

R. Scott-Moncrieff, M.D.

Victoria, B.C.

MOST of the organisms responsible for sinusitis belong to the penicillin-sensitive group, although some individual strains among these may be penicillin-resistant or may become so during the course of treatment. But penicillin in the treatment of sinusitis should be, on the face of it, curative in the great majority of cases. However, this is not so, for there are many factors which complicate the picture—factors which result from the peculiarities of nasal structure and function.

There are certain criteria for obtaining the maximum effect in the employment of any form of chemo- or bio-therapy. These are laid down by one well known authority, Dr. S. J. Crowe of Johns Hopkins Hospital, as follows: (1) all organisms, both aerobes and anaerobes, must be identified; (2) the bacteria must be sensitive to the drug or drugs used; (3) the drug must come in contact with the infecting organisms in the tissues in adequate concentration and over a sufficient period of time to allow complete bacterioeidal or bacteriostatic effect.

The above are general rules for this form of treatment, and there should be added another requirement in special reference to sinusitis: there must be adequate drainage or "ventilation". This applies to all forms of treatment of sinusitis, and is essential for proper ehemotherapy also.

So much for the general remarks, and now to come to the particular. This is probably best taken up under the different headings for the various methods of administration of penicillin.

Parenteral administration.—This is usually in doses of 15-20,000 units at 3 to 4 hour intervals. Administered thus, penicillin produces very variable results, which on the whole are similar to what one has found with the sulfonamides. Occasionally results are very gratifying, but more commonly the disease is not greatly influenced, even when the dosage reaches astronomical figures. The prognosis is definitely much poorer in chronic sinusitis than it is in

[&]quot;Rien n'est plus clair que ce qu'on a trouvé hier, nien n'est plus difficile à voir que ce qu'on trouvera demain."—Daremberg: Etat des Sciences Médicales au XVIIe Siècle.

^{*}Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Otolaryngology, Banff, Alberta, June 12, 1946.

acutc. A number of causes may be mentioned to account for this inconstancy, such as: (a) inadequate drainage with its resultant retention of the products of infection; and (b) inadequate concentration of the drug where it can reach the organisms, because of poor blood supply from ædema, pressure effects, permanent tissue changes in chronic conditions or because of the relatively poor blood supply of the mucous membrane of the sinuses.

When one considers the avascularity of the edematous and polypoidal tissue which so frequently is met with in sinusitis, it is hard to imagine how penicillin could penetrate to the infecting organisms in sufficient concentration to have any great influence on the course of the disease. Conversely, it would seem highly probable that certain cases of sinusitis in the acute stage, and showing no such tissue changes, would be greatly and rapidly effected by penicillin given by injection.

There is one type of case in which this form of treatment alone does give remarkably good and constant results, and that is where the tissues beyond the confines of the sinuses have become involved, such as fractures into the sinuses from direct violence, and extension of infection, especially when it has involved the orbital tissues. In fact, in orbital cellulitis, the parenteral administration of penicillin seems to be the treatment par excellence, giving not only complete, but extremely rapid subsidence of the infection.

It has been repeatedly observed that if, as well as giving penicillin thus, any necessary operative procedure is carried out, the prospects of regression of the disease are much brighter. The operation may be quite a minor one, such as opening an infected bulla cell, making an antral window, or even no more than infracture of an obstructive middle turbinate. The secret of success in these instances is almost certainly due to adequate drainage.

While on the subject of parenteral administration of penicillin, one should mention that very similar results are being obtained by the oral administration of the calcium salt, given, of course, in larger doses.

Local application of penicillin.—How is the drug to be introduced into the sinuses? (a) Spray technique.—This is the simplest form of administration of penicillin solution into the nasal cavity, and it is chiefly for this reason

that it has been advocated so strongly by some. An ordinary atomizer may be used as well as various more complicated methods, which aim at introducing into the nose a mist much finer than can be obtained from an atomizer. These are said to have a curative effect on many cases of sinusitis, but it is hard to understand how the drug, under these circumstances, is able to enter the sinuses unless some form of alternating suction or pressure is also applied. would seem likely that not a few of these cures were really cures of rhinitis rather than of (b) Direct instillation is a method sinusitis. which is commonly employed for introducing penicillin solution into both the maxillary and sphenoid sinuses, the technique being an every day procedure for the irrigation of these sinuses. But this brings up some specific questions, foremost among them being the strength of the solution to be used, and whether it should be the sodium or the calcium salt, etc.

Proetz has for years stressed the effect of nasal therapy upon ciliary action, and the great importance of maintaining it to the full whenever possible. He investigated the very question of the effects on ciliary action of penicillin solutions of varying strength, and came to the conclusion that a solution of the sodium salt up to 250 units per c.c. produced no slowing of ciliary action, but that when a strength of 500 units per c.c. was used this action was very slightly affected, and solutions stronger than this had increasingly deleterious effects upon the cilia. The majority of reports specify the use of penicillin solution of 250 U/c.c.

Proetz has shown how vitally important is unimpaired ciliary action, and consideration of this fact has materially affected practically all forms of modern intranasal therapy. Among other things we are urged to use no medication which is unduly alkaline, because, with increasing shift from the normal slightly acid to an alkaline nasal reaction, the cilia show increasing depression of function.

It is reported that penicillin solutions injected into the antrum will often clear up infection very rapidly. This is probably so, in that irrigations with common salt solution will frequently do the same thing. It makes one wonder if an accurate estimate has been made of the advantages of penicillin therapy. These are presumably cases in which the infection has not produced any great tissue changes, cases in which the infection has been more criminal.

in check by the natural defences of the tissues, and the irrigations have turned the balance against the infection. It is hard to understand how a few c.c. of 250 units per c.c. of penicillin solution, which, after all, would remain in the sinus for a relatively short period, could clear up an infected antrum, unless this infection was very superficial. For penicillin used thus must penetrate the tissues to reach deeply buried organisms. To overcome this difficulty it has been advocated that a rubber catheter should be left in the antrum after making a small nasoantral window, and frequent instillations or irrigations done with a suitable solution of peni-Among those cases of maxillary and sphenoid sinusitis which do not respond to irrigation therapy, whether with or without the addition of penicillin instillation, there must be many in which the infection involves also one or more adjacent ethnoid cells. Thus, even if the treatment were capable of suppressing the infection in the sinus in question, yet it would still not eliminate the sinusitis, since an infective nidus would remain in the ethnoid.

(c) A further method of administration of penicillin, however, is capable of removing this difficulty, that is the use of displacement technique, as originally described by Proetz. majority of reports on this form of treatment show favourable results with the penicillin solutions being used up to about 500 units per c.c. However, Smith and Tremble of Montreal feel that better results are obtained if solutions ten or more times that strength are used. maintain further that using the sodium salt in strengths of between 5,000 and 10,000 U/c.c. in normal saline does not materially reduce ciliary activity. In one report they state that a 5 to 8% solution of eocaine is used as an anæsthetic and to shrink the nasal mucous membrane and that, if this should slightly slow ciliary function, this very slowing may be of some use in the retention of the solution in the sinuses. This is a very interesting observation.

The foregoing has hardly done more than discuss very briefly a few of the high lights of the question, and has left unmentioned a number of factors which have a considerable bearing on the problem under consideration. The outstanding one is, perhaps, that of allergy. But this in itself is such a large and controversial subject that one can do no more than mention it as a problem which has very definitely to be taken

into account in treating sinusitis, whether penicillin is used or not.

BIBLIOGRAPHY

- CEOWE, S. J.: Ann. Otolaryng., Rhin. & Laryng., 53: 227, 1944.
 PEOETZ, A. W.: Ann. Otolaryng., Rhin. & Laryng., 51: 94, 1945.

- PROETZ, A. W.: Ann. Otolaryng., Rhin. & Laryng., 54: 94, 1945.
 TEMBLE, G. E. AND SMITH, F.: Canad. M. A. J., 53: 564, 1945.
 STEWBLE, G. C.: Arch. Otolaryng., 42: 327, 1945.
 PRIEST, R. E.: Ann. Otolaryng. & Rhin., 54: 786, 1945.
 HAUSER, I. J. AND WORK, W. P.: Arch. Otolaryng., 41: 161, 1945.
 BARACH, A. L. GARTHWAITE, B. et al.: Ann. Int. Med., 24: 97, 1946.
 HOULEN, M. J.: J. Aviat. M., 16: 358, 1945.
 VERMILYE, H. N.: J. Am. M. Ass., 129: 250, 1945.
- Scollard Building.

RÉSUMÉ

Les voies d'administration et les diverses concentrations de la pénicilline sont discutées. Les traitements adjuvants, - notamment, chirurgicaux, - sont étudiés. L'attention est attirée sur l'importance de maintenir aussi intacte que possible l'action des vibrisses, de favoriser en tout temps le drainage et d'assurer une ventilation adéquate. On doit toujour penser aux manifestations allergiques qui orienterent le traitement dans une voie toute différente.

JEAN SAUCIER

THE TREATMENT OF MASTOIDITIS IN CHILDREN®

L. H. Leeson, M.D.

Vancouver, B.C.

IN the past ten years the medicinal treatment of mastoiditis in children has undergone many changes; but in a frank mastoidal infection we must still resort to surgery.

We live in an age of magic drugs. It was once hoped and expected that the use of these drugs would bring the day when mastoid operations would be rare. However, this has not become a fact, for helpful as the sulfonamides. penicillin and streptomycin have proved in the alleviation of human ills, we still must eventually take many cases of upper respiratory infection to the operating room for mastoidectomy.

Mode of Invasion

It is difficult to separate infections of the middle ear from those of the mastoid cells. Clinically the disease is subdivided upon an arbitrary basis according to the focal manifestations present.

The centre of the pneumatic spaces of the ear is the antrum, the middle ear cells lying anteriorly, with the mastoid cells lying pos-

^{*} Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Otolarya-gology, Banff, Alberta, June 14, 1946.

teriorly. Ordinarily infection reaches the middle ear by way of the Eustachian tube. This is true of the otitis of scarlet fever, diphtheria, and of the influenzal infection, which sometimes appear in the mastoid process without first affecting the middle ear.

In nearly every case of acute infection of the middle ear, the mastoid cells, or antrum, are also involved. When interference with free drainage occurs mastoid symptoms become manifest. These are pressure from retention of the secretions in the cells, headache and localized pain.

SIGNS AND SYMPTOMS

The usual signs and symptoms of an acute mastoid infection are well known: pyrexia, pain, localized tenderness, aural discharge, sagging of the posterior external auditory wall, impaired hearing, infiltration under the skin over the mastoid process, perforation of the drum, leucocytosis, and finally the x-ray shows a degree of haziness to a pronounced resorption, as in the absence of cells, and a dense shadow. All these point to the presence of a mastoid abscess.

There is another class of patient in which these usual signs and symptoms are not seen. I refer to the child under 2 years of age. Recently the question of masked or latent mastoiditis has been revived. This infection some fifteen years ago was seriously considered as a factor in gastrointestinal infections. Operations in our hospital were done, as in many others. In some cases purulent discharge was found in the antrum, while in other cases the antrum contained nothing but air.

During the past few months we have again been confronted by an epidemic of gastro-intestinal infections in babies under two years of age. The usual signs and symptoms of an infective diarrhæa are present. The patients in their disease follow the usual conrse of frequent liquid stools, dehydration, anorexia, nausea, emesis, pyrexia, and lassitude. There is a gradual and steady loss of weight. There is never any reference by the child to a condition of pain in the cars, no rubbing of the side of the head or crying with pain. Examination by x-ray is not conclusive.

In 1936 and 1937 we were faced with the same type of epidemic diarrhæa in babies. At that time I reported a series of 21 cases which had mastoid operations. Those earlier cases

are similar to these presenting themselves at this time.

All these present cases were admitted to the Infants Hospital for the treatment of an acute, subacute, or chronic diarrhea primarily. Local signs of mastoiditis are lacking. The ear drum does not always show signs of an acute or subacute inflammation. Slight redness of the drum may be seen when the baby is not too dehydrated; but in those in whom dehydration is advanced the drum may present the same pallor as the other body tissues.

During these past two weeks 7 patients were operated on in the absence of any usual signs. These operations were a last resort. All operations were bilateral. All patients showed one or both antra filled with a mucopurulent, stringy, gelatinous secretion, and all produced staphylococci on culture.

A survey and otologic examination of all patients has been done in the Infants Hospital. The findings of the examination with special reference to the colour, consistency and markings of the drum have been recorded. Frequent examinations of these patients are done to ascertain if any changes are shown in the drum appearance. If these changes are considered to make us suspicious of a "masked" antral infection, the mastoid cavity is opened and the contents are cultured.

Staphylococci have been found to be present exclusively. This lowly staphylococcus has taken on a new rôle in its invasion process in spite of what is considered adequate treatment with sulfonamides and penicillin.

Patterson and Smith have now investigated and have analyzed 120 consecutive cases with the hope that these observations might be of value in reaching a solution to what is admittedly a difficult clinico-pathological problem. They have classified these cases into the following groups.

Group 1. Diarrhœa and vomiting, 49 cases, pus was found in the mastoids in 35.

Group 2. Respiratory conditions; of the 30 patients

in this group pus was present in 17.
Group 3. Marasmus conditions; six of the 12 cases had pus in the mastoids.

Most of the cases had adequate courses of the sulfonamide drugs, but the course of the disease was unaffected. Offitis media was discovered in only 12 cases.

These men found that bacteria in mastoid pus are not of any characteristic group.

Pneumococci predominated in infants, followed by streptococci, staphylococci, B. coli, B. proteus, M. catarrhalis, etc., in decreasing ratio. We in Vancouver during the present epidemic, found staphylococci exclusively.

LABORATORY FINDINGS

The white cell count in uncomplicated mastoiditis is seldom high, usually between 12,000 and 20,000. If a high white count of 25,000 to 30,000 is found there may be other septic processes present. As a rule, an increase in leucocytes is accompanied by an increase in polymorphonuclear cells.

In ordinary otitic infections or uncomplicated mastoiditis, hæmoglobin and red cells are usually not affected. But a rapid decrease in hæmoglobin and red cells may indicate complications. Repeated examinations of the blood cells should be done if the course of the otitis is not progressing in the usual satisfactory manner.

X-RAYS

The x-ray picture is an important factor in deciding the future management of the patient and disease. In infants over one year of age, three degrees of mastoid disease may be seen by x-ray. (1) With infection and occlusion of the antrum the x-ray shows opaqueness of any cells, but the osseous structure and cell walls are still visible; (2) with additional softening the osseous structure and cell walls are no longer clearly visible; and, (3) with extensive mastoid destruction the sinus wall is visible when it should normally not be.

It has been found that when the x-ray shows active disease, following an otitis media, in that there is involvement of the cell structure and breaking down of bony cellular walls, the mastoid should be opened. The constitutional signs and symptoms may have abated and disappeared. The post-auricular swelling may have subsided, the discharge may have ceased from the middle ear, and the doctor may, therefore, be of the opinion that the mastoiditis has resolved, but if the x-ray shows definite erosion, the operation must be performed.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis in acute mastoiditis should be made from adenitis, furunculosis, and neuralgias. Pain, neuralgias or neuritis in or around the ear referred from other regions may be confusing. Eczema, erysipelas, malig-

nancy, perichondritis and trauma may also prove puzzling.

COMPLICATIONS

In early mastoidal infection the case must be closely supervised so that complications may not occur. These are not uncommon; of particular note are sinus thrombosis, pneumonia, meningitis and erysipelas.

· TREATMENT

The treatment is twofold, medicinal and surgical. Of the medicines, sulfonamides are used nearly exclusively. It is usual that the prescribed sulfonamide given for the attack of influenza, and otitis media, is continued in use, for each drug has its characteristic value in limiting the growth of a particular organism. The method of administering the drug is by powder, tablet, or in an emulsion. The dosage recommended varies depending on signs and symptoms when the patient is first seen. One grain per pound of body weight in the first twenty-four hours, with reduction during the succeeding days to what is considered adequate, is the aim.

If at the expiration of seventy-two hours of medication the patient has not reacted satisfactorily in a reduction of the symptoms and signs, an x-ray picture is taken. If an amelioration of the signs and symptoms has been secured, and the patient's condition indicates that the acute process has subsided the patient is watched during the succeeding days.

It is at this time that the x-ray is of great value, in that a clearing of the haze and a better delineation of the trabeculæ may warrant a stay in the surgical treatment. On the other hand, even though the patient seems to be on the road to recovery, if the mastoid cells are obliterated and the haziness is still present, it is imperative to open the mastoid.

It was considered in the early days of sulfonamide therapy that mastoid disease could almost be stopped by these drugs, and that by their universal use the infection of the mastoid cells could be "nipped in the bud". But the infection in the mastoid will not drain away. An abscess enclosed must be drained, in these cases by mastoidectomy.

There is no doubt but that mastoid operations are less frequent than formerly. To what is this due? Is it that the sulfonamides given early in influenzal infections and middle ear disease are a factor, or is it that the invading micro-organisms in children's "colds", influenzal and other infectious conditions of the upper respiratory tract have been changed, or have been attenuated in growth? Thirty years ago pneumococci predominated, later streptococci, and more recently we find that staphylococci are playing a more important rôle.

There is a stage in the process of infection of the middle ear in which the causative organism may become so degenerated that the disease terminates as an otitis media. This is probably due to the sulfonamide which exerts a beneficial effect upon the tissues resisting invasion. Many cases which heretofore would, in all probability have continued to a frank mastoidal infection are now by sulfonamide therapy brought to a successful conclusion by being limited to an otitis media. Of the many sulfonamides administered by far the greatest amount used is in the form of sulfadiazine. The results obtained in the hands of the general practitioner using sulfadiazine show that a large percentage of influenzal infections are terminated before the infection has been established in the mastoid cells. This treatment, it is considered, has been a factor in reducing mastoid operations. It is true in Vancouver that mastoid operations have decreased to the point that they are now rare. The general practitioner having treated the child for a "cold", or a sore ear, it is only occasionally the otologist is called to a case presenting signs and symptoms of a mastoid disease.

In intracranial infections of staphylococcic and pneumococcic meningitis it has been found that sulfadiazine was of greater value than sulfathiazole. The former was present in the cerebrospinal fluid in greater concentration after oral administration than was the latter drug. A higher concentration of sulfadiazine in cerebrospinal fluid in pneumococcic meningitis is essential to recovery, than that necessary in staphylococcal infection.

Penicillin is effective if given early in a great percentage of cases of acute suppurative otitis media. The infection is cured and complications are prevented. Recently much study has been directed (Weinstein and Atherton) to evaluate the effective dosage of penicillin, to ascertain the length of time of treatment, and to determine whether or not there is any correlation between the total amount of penicillin required to produce good results and the

organism responsible for the infection. This has been accomplished by the study of x-ray examinations of the mastoid as a control.

Ten thousand units of penicillin were given intramuscularly every three hours over a period of days until the external auditory meatus was dry for at least 24 hours. In some cases the treatment was continued for several days after the discharge had ceased. No other treatment locally was done except wiping the canal dry with strips of gauze several times daily. The dosage of penicillin required ranged from 300,000 to 400,000 units given for an average time of four days, to as much as 1,500,000 units. Organisms found infecting the middle ear were mostly of the Staph. aureus group.

Examination of the aural canals and drums during the period of treatment showed a gradual decrease in the amount of purulent discharge, with lessening of bulging and redness of the drum. The temperature returned to normal rapidly. During the days of treatment with lessening of the purulent discharge it was noticed that this exudate was replaced by a mucoid material which continued for a varying number of days.

Repeated x-rays of the mastoids were done. No local signs of mastoiditis were found, such as ædema, localized tenderness, or swelling or sagging of the canal wall. A few showed a moderate degree of cellular destruction, while others on discharge from the hospital showed what appeared to be a regression of the infective process in the mastoid during the course of the penicillin treatment.

Weinstein and Atherton are of the opinion that in the series of cases of acute suppurative otitis media they treated with penicillin. the antibiotic agent is effective when Gram-positive cocci are the causative organisms. Complications are reduced to a minimum, and mastoiditis which was and is the commonest complication is reduced or almost eliminated.

Free and his co-workers gave oral doses of penicillin and measured the excretion of this agent in the urine. When they gave a dose of 10 gm. of soda bicarbonate, the total excretion of penicillin varied from 1,950 to 12,700 units. When no alkali was given the urinary excretion was 8,800 to 33,600 units.

Intramuscular administration of penicillin is preferable to intravenous therapy. Soon after it reaches the blood it disappears very rapidly.

the level of consciousness. They had not been taught that fear is respectable and should be "recognized as a benign, protective mechanism which prepares the organism for supreme effort".

In addition to aggression, fear, and their repression, other factors are responsible for the large number of psychiatric cases, particularly those detected at pre-combat levels. Strecker³ in evaluating our democratic way of life, has pertinently remarked, in a true democracy there are not only rights and privileges, but duties and obligations. Our military experience, he states, has shown little evidence of intellectual inferiority, but rather widespread emotional immaturity and social irresponsibility. He feels this is a result of faulty childhood training-our failure to instil a reasonable amount of social responsibility, to develop the habit of contributing to the social welfare of family and community. It is concluded therefore, since these lesions are impressed mainly by example, that too many adults responsible for the training and development of children are themselves immature and basically undemocratic in their attitudes and behaviour. Strecker feels that this trend is both dangerous and important, for he states, "unsolved, it will threaten the security of our democratic civilization".

CIVILIAN OBSERVATIONS

In civil life there is much evidence of this emotional and social immaturity, of this inability to cope with difficult situations and adjust satisfactorily to the stress and strain of life. We have all seen those personalities who tend to make the most of illness, who react to difficulties with marked somatic dysfunction and cling tenaciously to their symptoms. These people, by and large emotionally immature and unstable, tend to over-react to environmental stress with anxiety and hysterical features, and may even regress to infantile forms of behaviour. It is important to realize that such common complaints as anorexia, nausea, vomiting, dyspepsia, constipation, diarrhœa or incontinence may well be adult manifestations of the "organ language of childhood", so well described by Weiss and English.1 . Also, that a large percentage of our migrainoid, anginoid and hypertensive cases, people ill for years with their "sick headaches", insomnia, dyspnœa, palpitations and submammary pain are

actually snffering from nothing more organic than a chronic anxiety neurosis. As Fetice, man⁴ has so aptly remarked, "It is the personality of the patient, including his intelligence, his dynamic energy and his pattern of behaviour, that is so highly important in all consideration of disease. For the personality is like a prism between pathologic changes and symptoms, capable of enlarging or of eliminating them".

(a) Introgenic (Gr. intros, doctor) discases. These form a frequently encountered group which has been well described by Gillespie.5 They are psychologically produced syndromes initiated by ill-considered, vague diagnoses and even uncertain attitudes on the part of medical men to susceptible patients, without explanation, and often without necessity. Oille has stated that "almost 60% of all patients who consult a cardiac specialist are suffering from either an exaggerated or wholly unnecessary anxiety state about their hearts, arising from suggestion and not based on reason". We have all seen these patients doomed, as it were, to years of semi-invalidism because they were told they had a "weak, leaking or enlarged heart", a "fallen bowel" or "dropped kidney".

In the army it was both surprising and distressing to find the large number of healthy men with fixed ideas of somatic disease in the absence of any clinical findings. A few years ago, a group of more than 500 recruits were chosen at random at one of our largest reception centres. They were given a questionnaire to fill out which asked, among other points, "Are you suffering from heart disease?" The resultant figures were quite startling and indicated that almost 30% believed, or claimed to believe, that they had "heart trouble". Almost without exception they revealed the fact that their family or school physician had diagnosed the organic disorder. In addition, they were quite surprised, usually skeptical, and often hostile, when informed that their physical examinations were negative. It may be true that a certain percentage of these patients are so hypersensitive and predisposed that it but requires a slight impetus, such as the careless, ill-timed remark of a doctor, to set off a train of distressing events. However, a large number do not, and need never, fall into this category, and could be spared months and years of anguish by a few simple, well-chosen sentences from the doctor. Even if snfficiently

unfortunate to be started on this psychological road to illness, the majority could be easily detoured by early, competent treatment.

Many of our foremost medical men, realizing the importance of these facts, have repeatedly emphasized them in their writings. Alvarez,7 one of the pioneers in this field, recently stressed the point that every doctor has to be "a psychiatrist of sorts". He has pointed out that the average physician dislikes spending time with neurotic people, endeavouring to teach them a more sensible way of life. However, he feels that, if we are to help them at all, we must make these efforts. And if we are to avoid much needless surgery and incorrect, frightening diagnoses, we must become expert at recognizing the clinical manifestations of hysteria, anxiety, hypochondriasis and mild forms of insanity. Persons with the early symtoms of these conditions rarely go to a psychiatrist; rather do they visit an internist, cardiologist or gastroenterologist. Therefore, it behooves the average medical practitioner to prepare himself to care for these people in an intelligent and competent fashion.

(b) Prevalent misconceptions. - There is a widespread misunderstanding concerning the significance of such terms as "psychoneurosis" and "emotional instability" that must be elimnated. It must be honestly realized that we all have an inherent distrust and aversion for the "insane"; and because psychiatry is so commonly identified with the mentally unbalanced and disordered, we have bedecked it with all the ancient fears, superstitions and taboos. Psychiatric methods often seem superficially incomprehensible and mysterious: even to many doctors the interpretation of illness, by means of actions and reactions, seems an intangible diagnostic procedure. Yet we all indulge in this practice every day: we all judge others by their behaviour and its deviation from the so-called norm. How often have we made such remarks as, "George is a queer one", or "Henry is always so worried about his health", and given no further thought to the subject. But let George or Henry visit a psychiatrist and the entire complexion of things. will change. He is immediately labelled with a name that the public associates with weakness or defect, and he may be forever branded with the stigma of mental disease. Actually, the psychiatrist has probably agreed with our diamosis, but he calls it a functional disorder

or neurosis which, for him, does not even imply insanity. But, too often, the damage is already done!

The general public must be educated; they must be taught certain basic facts and be made to understand the power of, and the rôle played by, the emotions in our everyday life. Chisholm³ has clearly stated, "even though man is a thinking creature, his conduct is not regulated by rational thought, but rather by the driving power of his instincts and emotions". These drives have been fashioned in infancy and early childhood, and their pattern may be followed in all later experiences. Throughout life we strive for health, happiness and esteem but, too often, do we experience pain, frustration and derision. It is on the basis of these early emotional patterns that our reactions to disease, distress and defeat are determined.

Therefore, the layman must learn to appreciate that, as the result of environmental demands or desires in opposition to this basic pattern, there develop emotional conflicts located, mainly, in the unconscious mind. Consequently he is, to a great extent, unaware Furthermore, conflict of their existence. always engenders tension which, if the particular precipitating problem is not satisfactorily solved, tends to overflow. This occurs after a certain period of time and over a certain level which varies with the individual. Over this individual tolerance threshold, the tension may express itself in many ways, commonly as anxiety manifestations with somatic reference, the latter usually gastric or cardiac in nature It is of these that the patient becomes unpleasantly aware and, not appreciating the underlying processes, believes he is physically This additional concern causes more tension which is added to that already present due to the primary problem, hence we have an intensification of the symptomatology and the production of a vicious cycle. It is obvious that good medical management can easily dispel this added tension and anxiety, whereas inadequate therapy may well serve to fix and perpetuate the symptoms and distress. In addition, the doctor, by properly evaluating the patient as a psychobiological unit, may be able to discover the true nature of the condition. and aid him in its solution.

(c) Common medical attitudes.—Many physicians, however, exhibit marked lack of under-

standing in the handling of psychogenic and psychosomatic conditions, and would appear to have little sympathy for such patients. They are classed as "neurotics"; unconsciously looked down on as inadequate personalities, inferior by nature, for whom little or nothing can be done. This prevalent attitude exists primarily because so many men, neither appreciating psychological mechanisms nor their treatment, have a biased outlook and remain fettered by the bonds of mediæval misconception and ignorance.

Too many practitioners, having made a "snap diagnosis" that the patient is a confirmed neurotic and cannot be helped, usually react in either of two ways. They may humour the patient along, often acceding to demands for medicines or surgical intervention, thereby unintentionally cementing his conviction organic disease. Alternatively, they may attempt to rid themselves of the case, brushing aside all complaints and scoffing heartily at the thought of any disease process with such familiar advice as, "You're just a little nervous, take a short vacation and you'll feel fine in no time". One cannot "go away and rest" and leave one's emotional state behind. A patient will remain emotionally upset (and physically distressed) until some way out of his difficulties is found.

Most patients react negatively when told their complaints are "imaginary" or "in their mind", and tend to struggle all the more strenuously to prove how sick they really are. They find themselves in a more intense conflict with the situation that is primarily distressing them, and become locked in an almost neverending campaign to put across their illness. Under such circumstances, treatment is extremely difficult and often futile.

PSYCHOTHERAPY

The subject of psychological treatment is too large to be discussed in this paper, but a few general points will be briefly mentioned.

Treatment, broadly speaking, has three practical goals: (1) to deal with the signs and symptoms and bring about a return to the conditions prior to the illness: (2) to re-adapt the patient to a socially valuable life; and (3) to so arrange his future, if possible, that strains which are, for him, intolerable, will not have to be endured again. But, for too many years, disease has been considered as only a disorder

of organs and cells. Subsequently, then evolved the specialist with his numerous complex and precise instruments. Although effect. ing much progress, this organic phase of machines and specialists has definitely limited the scope, knowledge and interest of the individual and markedly depersonalized the doctor. patient relationship. There are only too many patients, who have made the medical rounds with little resultant improvement in their health. They have been repeatedly assaulted by batteries of tests, and thereafter informed by each man. "There is nothing wrong with your stomach (or heart, as the case may be) Mr. Jones, you are just a little run down", Mr. Jones is delighted to know that all his organs are functioning perfectly, but is still puzzled as to why he feels so miserable, has little appetite, is losing weight, strength, sleep. and, in general, his zest for life. The answer, in view of the foregoing, is distressingly obvious to all.

(a) Main types of psychotherapy. - As Grinkers has so well described, psychotherapy can be divided into two main types, the suppressive and the expressive. Broadly speaking. the main principles of each are as follows: (1) The suppressive type of therapy is useful. mainly in the early mild conditions. It consists. basically, of strong persuasion, urging the patient to control himself. to suppress asocial and worrisome thoughts or wishes, and to find an interest or inspiration in life, work, the community, religion, etc. (2) The expressive type of treatment, used in the more severe and deeply rooted personality disturbances, is more analytic in approach. It urges the loosening of repression. plus the conscious recognition and analysis of unconscious asocial wishes, with the resultant freedom of energy bound in needless repression. Actually most, if not all, psychotherapy contains some elements of both these types. This is well demonstrated in the modern group psychotherapeutic methods which were so effective during the war, and whose application in times of peace should prove so very successful.

(b) Group treatment.—In the early years of this century, Pratt⁹ originated the idea of group psychotherapy, primarily as a time-saving device. He soou recognized the importance of the emotional lift obtained by his patients, their encouragement at seeing the progress of other patients, and their efforts

to compete with each other therapeutically. His first group consisted of tubercular cases. Since then, numerous other groups have been successfully treated, including diabetic, cardiac, hypertensive and peptic ulcer cases. Pratt's methods are based mainly on suppressive principles with such analysis as there is being on a very superficial level. He also has stressed the fact that in the treatment of the simpler neuroses and many psychosomatic conditions, one does not have to be a psychiatrist.

Wender 10 has also emphasized the effectiveness of group interaction as a basic medium for the release of unconscious emotional difficulties. He states that "man is a group animal . . . (he) is a social product and his inhibitions and repressions are motivated by the mores of the group . . . his difficulties in adjustment and failure to express his emotional troubles are the result of his inability to face the group and find his place in it . . . and his failure to achieve this adaptation produces a neurosis or psychosis". He suggests that the placement of the individual, who has failed to adapt well to the stress and strain of life, in a small group of friendly disposition and composed of those with similar disorders is most helpful. It will enable him—when he learns to appreciate and comprehend the problems of others-to associate himself with them and release his emotional drives of aggression, hate, love, desire, without concomitant sense of guilt. Thus, by understanding and overcoming his difficulties, and making good adjustment in the small group, he will be better equipped to face the world and handle his emotional problems, social and otherwise. on a satisfactory basis.

This mode of therapy was widely, and apparently effectively, used by our American allies, especially during the later stages of the war. The program usually consisted of a series of short, informal discussion periods with the emphasis being placed on the functional nature of the symptomatology. In these classes an attempt was made: (1) to reduce the various complaints to a common source; (2) to describe, in an elementary fashion, the anatomy and physiology of the central nervous system. aided by simple diagrams illustrating the correlation of the nervous system and the viscera. glands and emotions, as well as their reaction to various environmental changes: (3) to explain, in simple terms, the concepts of the unconscious, the instinct of self-preservation, the social drive, and the conditioned reflex; (4) to clarify the basic conflict between the sense of duty and the desire to escape danger and death; (5) to explain the symptomatology as manifestations of overwhelming fear in the presence of great danger; (6) to reassure the patient that with the elimination of the precipitating factors the symptoms will invariably, though gradually, disappear; (7) to restore and rebuild morale, and to cultivate a sense of social responsibility.

These group sessions were supplemented by any required individual therapy, and also aided by occupational and educational therapy.

(c) Surgical application.—It is quite obvious that the best fitting prosthetic appliance or plastic device is of little value if the patient is not psychologically prepared for its use. For such patients, the hospital is a world of unreality, where they are attended to and cared for, in contrast to the outside world where one swims or sinks. Although they should not be pampered, it is evident that they should be prepared for their new environment, so much changed because of their injury.

Much more applicable to civilian practice is the frequency with which extensive and repeated investigations, and often lengthy and fruitless courses of treatment, have been directed towards ill-defined organic conditions. These diseases often have proved to be psychogenic or psychosomatic in nature on the later taking of a psychiatric case history.

It would appear both logical and important, therefore: (1) To always assess the personality prior to elective surgery. Our high-grade feeble-minded, and those neurotically predisposed, are very susceptible to hysterical sequelæ, especially with spinal anæs-Thus great care should be taken in what one says to, and in front of, these patients, for misinterpretation at this time of increased suggestibility may well precipitate, perpetuate, or fix neurotic reactions. (2) To prepare psychologically all surgical patients with a simple, clear and reassuring statement of the current An explanation given of what is situation. going to be done, and what result can be expected. Experience has shown that surgical intervention may be the beginning of years of neurosis much more disabling than the condition it set out to relieve, which could have been avoided by simple explanation and reassurance.

CONCLUSION

Psychological factors play a vital rôle in all illness and disease. This fact, though basically old and familiar, was repeatedly brought to our attention during the war, and its application is even more important during times of peace. Education of the public and eradication of prevalent fallacies concerning psychiatry are urgently required, with similar attention being directed towards current medical misconceptions and resultant mismanagement. We cannot overstress the necessity for the widespread appreciation of all patients as psychobiological units—for the evaluation and treatment "of the patient, not merely the disease".

REFERENCES

- Weiss, E. and English, O. S.: Psychosomatic Medicine, W. B. Saunders Co., Phila., p. 1, 1943.
 Chisholm, C. S.: Some factors in the high rate of neuropsychiatric casualties, Bull. Meninger Clinic, 8: 2, 1944:
- STRECKER, E. A.: War psychiatry and its influence upon post-war psychiatry and upon civilization, Proc. Inst. Med. Chicago, 15: 10, 1945.
- 4. FETTERMAN, J.: Factors in recovery from injuries to the head, War Med., 5: 4, 1944.
- GILLESPIE, R. D.: Psychological medicine and the country doctor, Brit. M. J., 2: 263, 1944.
- OILLE, J. A.: Cardiac neuroses, Canad. M. A. J., 45: 1, 1941.

- 1, 1941.
 ALVAREZ, W. C.: Nervousness, Indigestion and Pain, Preface, P. B. Hoeber, Inc., New York, 1943.
 GRINKER, R. R.: Brief psychotherapy in war neuroses, Psychosomatic Med., 6: 2, 1944.
 PRATT, J. H.: The principles of class treatment, and their application to various chronic diseases, Hosp. Soc. Serv. Ass. New York City, 4: 49, 1917.
 WENDER, L.: Group psychotherapy: a study of its application, Psychiatric Quarterly, 14: 708, 1940.

RÉSUMÉ

Autre important article à propos de la médecine psycho-somatique. Brève mise au point de la question. Ne jamais perdre de vue que l'homme est une unité psychobiologique et que les facteurs psychologiques jouent un rôle énorme dans l'éclosion des maladies. La querre a démontré la réalité et la fréquence des facteurs psychologiques en même temps qu'elle a permis l'organisation du traitement, collectif et individuel. Le public doit être éduqué et renseigné sur cette question afin que disparaissent les préjugés qui entourent la psychiâtrie. Le médecine lui-même devra apprendre à faire de la psychiâtrie préventive et à diriger ses névropathes confirmés sur une institution de psychothérapie. Traiter et connaître le malade est de la meilleure médecine que faire un diagnostic et instituer le traitement d'une maladie.

JEAN SAUCIER

Science, then, can help to stimulate the intellect and to discipline the will. To this extent it has bearings on the good life. But it cannot do this work alone: it must take its proper place in a liberal education and an open culture. The right use of science as a school of rational life depends on its being set in a matrix of other studies and other activities. Science by itself throws no light on its own value, nor on values in general. It is not a royal road to knowledge of every kind .- E. F. Caldin.

VERTIGO*

T. J. Haughton, M.D.

Regina, Sask.

THE complaint of dizziness is one of the most common in clinical practice and while it is often a secondary symptom it may be the only one or the most troublesome, and as such may require much study to elicit the cause.

It soon becomes apparent however, that the meaning of dizziness varies with the individual. Frequently, when he presents himself, the attack is past and the symptom is described in retrospect. Moreover, since it is of such a subjective nature it requires careful inquiry on the part of the physician to determine the exact nature of the sensation. Thus we find complaints of weakness, faintness, giddiness, light-headedness, reeling or swimming of the head. Others describe sensations of the sinking of the floor or ground beneath them, others of erect objects becoming inclined. I propose to deal only with what we know as true vertigo.

True vertigo is the subjective symptom of equilibrium disturbance, a disturbance in the normal relationship of an individual to his surroundings. He feels that either he is moving in relation to the objects around him or that these objects are moving about him. It always implies a sense of motion and is usually rotatory.

Balance in the upright position is maintained by three mechanisms: (1) the superficial and deep sensations from skin, muscle tendous and joints; (2) visual impressions; and (3) the vestibular apparatus of the inner ear.

In disturbances of deep sensibility as typically produced by tabes where afferent impulses from skin, joints and muscles are interfered with, through degeneration of the posterior columns, there may be unsteadiness in walking or actual falling when the eyes are closed. This is often termed "dizziness" by The nature of the condition is the patient. recognized by the presence of other clinical findings, such as disturbances of co-ordination, absent deep tendon reflexes, spinal fluid changes and other manifestations of syphilis. It is possible however, that the disease may have affected the eighth nerve or its pathways, in which case true vertigo will result.

^{*} Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, Section of Otolaryngology, Banff, Alberta, June 14, 1946.

Ocular vertigo may arise from diplopia due to extra-ocular palsies, muscle imbalance or errors of refraction. It is more pronounced on looking towards the side of the affected muscle and disappears on closing the cyes. The vertigo experienced on looking from a height is partly ocular, largely psychogenic. It is usually a feeling of uncertainty, anxiety, or giddiness. It involves no real pattern of motion.

The vertigo produced by inner ear disturbances is typically rotational in character. Experimental stimulation of the normal labyrinth will produce the same sensations as in disease. As pointed out by Brunner, only vertigo of the type which can be induced by the usual clinical methods of examining the labyrinth can be considered as labyrinthine.

ETIOLOGY

The most important of the three mechanisms of equilibrium is the vestibular system. Any factor causing either irritation or destruction of any portion of this system may bring about true vertigo.

The vestibule and semicircular canals together with the cochlea make up the inner ear. Some authors speak of the entire internal ear as the labyrinth, while others think only of the vestibule and semicircular canals as such. The nerve fibres arising from the maeula of the vestibule and the crista of the ampullæ of the semicircular canals have their trophic centre in the vestibular ganglion. The primary neurons from this ganglion end centrally in the several vestibular nuclei. These nuclei have their afferent and efferent connections with the brain and spinal cord. The whole structure, semicircular canals, vestibule, vestibular portion of the eighth nerve and its central pathways constitute the labyrinthine system. In passing it is well to note that because of its intimate anatomical relation with the cochlea, any disturbance of that portion of the vestibular system contained in the inner ear may, and usually does, cause acoustic symptoms.

In diseases of the vestibular system vertigo may be the only symptom, but as the disease persists or increases in severity, it always becomes associated with other subjective and objective manifestations. Brunner, in recent papers has emphasized the fact that in a typical labyrinthine scizure some degree of auditory impairment is always present. It is pointed out, however, that several years may elapse

between the first attack of vertigo and the onset of auditory disturbances. The deafness varies in intensity from time to time and usually involves the entire hearing range. Audiometric tests show the impairment to be a nerve type. The tinnitus may be of a double nature; a high-pitched continuous sound present at all times, and a secondary pounding or roaring type becoming worse when paroxysms occur.

When severe labyrinthine attacks of vertigo occur some degree of nystagmus is usually present. It is of the horizontal-rotatory type with the quick component directed to the unaffected ear. It may range from the first to the third degree of intensity. The vertigo present in labyrinthine disease always shows some relation to the associated nystagmus. Vertigo is often present without nystagmus, but if labyrinthine nystagmus is found, some degree of rotational vertigo is experienced.

Systemie disease, aural disease, or disease of the central nervous system may produce rotational vertigo. True vertigo may arise in many systemic diseases. In recent years much investigation has been done and much written on the labyrinthine symptom-complex known as Ménière's disease. This is a clear-cut pieture of rotational vertigo with nausea or vomiting. nystagmus, tinnitus and hearing impairment, appearing in paroxysmal attacks, I have been interested in the ease that presents, not necessarily the complete picture of labyrinthine dysfunction, but rather the type manifesting the earliest symptom of irritation, a dizziness, which without any prompting on the part of the physician is described as a "turning" or a definite pulsion to one side or the other. Often there is no nystagmus.

Audiometric tests in these cases show little or no hearing loss, or at least equal diminution in both cars, that may have preceded the complaint. Caloric tests are either normal, slightly hypo- or hyper-active, and are usually equal in response in both ears. The attacks do not appear in paroxysms, are usually constant for days, weeks or months with slight remissions and exacerbations. The symptom may arise from general systemic disease affecting the blood supply to the labyrinth, such as arteriosclerosis, cardiac disease, hypertension, the anemias and other blood dyserasias.

Undoubtedly arteriosclerotic changes play a big part. Many patients with these labyrinthine symptoms are in their fourth to sixth decade. In 94 cases collected by Franke. Hockwart and Brunner, the first attack was noted in the fifth decade or later in 51 cases, and in the fourth decade in 25. These authors stress the fact that arteriosclerotic changes can be found often in the internal carotid and vertebral artery, as early as the second decade of life, and are always found after the fourth. They further state that though arteriosclerotic changes in the internal anditory artery are usually not seen, the flow of blood in this vessel is disturbed if there are organic changes in the hasal or vertebral vessels. This abnormal flow in turn stimulates an abnormal vasomotor reaction of the blood vessels of the labyrinth. When arteriosclerosis can be detected in the peripheral vessels this may well be assumed. However, when no such change can be noted even in the eyegrounds, the diagnosis is diffi-A slowly progressive interference with labyrinthine function theoretically could be the earliest symptom of cerebral arteriosclerosis. Many anthors stress the importance of an unstable vasomotor system in the production of labyrinthine vertigo.

Kobrak² suggests that changes in the labyrinth are brought about by an increased permeability of the labyrinthine vessels and of the choroid plexus, due to an abnormally labile vegetative nervous system. Most investigators now agree that the vasomotor or angioneurotic factor plays the chief rôle in non-suppurative labyrinthine disturbances.

Atkinson³ explains the Ménière symptom complex entirely on a vasomotor hypothesis and consequently divides his cases into vasodilator and vasoconstrictor groups. His treatment is based on such a differentiation.

Mogan and Baumgartner develop the vascular theory still further. They consider that any foreign or even emotional disturbance through irritation of the vasconstrictor fibres of the internal auditory artery may cause va-ospasm and hence hydrolabyrinth. They cite a case with arrest of hearing loss and complete disappearance of vertigo following cervical ganglionectomy.

Spiegel? also observed that stimulation of the cervical sympathetic nerve influenced the state of contraction of the 1 tyrinthine vessels. The occasional Ménière-like attack associated with migraine, which is now generally assumed to be a vasomotor disturbance, supports this view

Leother explains the vertigo and acoustic symptoms found in neurotic cases on the basis of vasomotor changes resulting in spasm and abnormal permeability of the labyrinthine vessels.

Closely allied to these vasomotor changes is the assumption of an ædema of the labyrinth due to a faulty water metabolism (Mygind and Dederling) or the increased intralabyrinthine sodium ion concentration advanced by Furstanburgs and his associates.

The part played by foci of infection, I believe, has been over-emphasized. However, chronic infection in the gastro-intestinal or respiratory tract, teeth, tonsils, sinuses, gall bladder and colon may exert a direct toxic effect upon the labyrinth. Any generalized

endogenous infection, as well as exogenous poisons such as alcohol, nicotine or quiring through their vasomotor effects may result in spasm, where we had a manorrhage into the labyrinth. Undoubtedly labyrinthine disturbances may arise on an allergic basis as pointed out by L. W. Dean. I have seen a patient with him who for twenty years had a known sersitivity to crisco. Immediately upon its ingestion, he developed in addition to his urticaric and angioneurotic whema, acute Ménière-like attacks—severe vertigo, prostration, impaired hearing. These attacks occasionally resulted in unconscionsness.

AURAL DISEASES

External ofitis or forcign bodies in the external canal may cause a rotatory type of vertigo either by slightly irritating the labyrinth by increasing the intralabyrinthine pressure, or by setting up other secondary changes in the inner ear. In middle ear disease of a non-suppurative nature or even Eustachian tube obstruction as pointed out by Brand." vertigo may result.

The mild though progressive vertigo associated with chronic otitis media, indicates a perilabyrinthitis and threatens an actual extension of the suppurative process into the labyrinth. The sudden onset of vertigo, nausea, vomiting, nystagmus and deafness points to an actual break through of the middle ear suppuration. The diagnosis is seldom in doubt in the presence of chronic middle ear disease and early surgical intervention is indicated.

DISEASES OF THE CENTRAL NERVOUS SYSTEM

Vertigo in central lesions may be due to actual pressure on the vestibular system or to direct lesions of the vestibular nuclei or their pathways. Any general increase in intracranial pressure may cause compression of the endolymphatic sac which is in turn conveyed to the membranous labyrinth. At first the vestibular system may be stimulated and later paralyzed, the hyperexcitability of the labyrinth giving way to hypoexcitability or complete loss of function. The intensity of the vertigo depends upon the rapidity of the progress of the lesion, being more marked in trauma or acute inflammatory processes.

Cerebellopontine angle tumours, which are most frequently acoustic neurinomas, may produce the symptom by pressure on the trunk of the eighth nerve, or its nuclei. If it interrupts

the continuity of the nerve both cochlear and vestibular degeneration will result. In the early stage, either acoustic or labyrinthine symptoms may be first noted. As the pressure on the nerve increases the auditory symptoms may change; the tinnitus may disappear and the deafness become total. If the vestibular disturbances is severe Ménière-like attacks may occur.

The differential diagnosis between peripheral labyrinthine and central disease is not always easy when vertigo is the first and most prominent symptom. Its association with the other subjective and objective signs and their order of appearance and relationship provides the clue. Peripheral labyrinthine vertigo is always a turning vertigo. Apparent movements of surroundings are usually more common than movements of the body. Brunner¹ points out that the sensation of lateropulsion is a symptom of non-suppurative central disease rather than inner ear disturbance.

In peripheral labyrinthine involvement changes in the position of the head will either precipitate or increase the severity of the symptom. In a central lesion this has no effect on the vertigo. In this peripheral type, an attack usually lasts only a few seconds or minutes. Only when there is a sudden break-through of pus or hæmorrhage into the labyrinth does the attack persist. Central vertigo develops gradually and remains for weeks, months or years. Fischer stresses the importance of a disproportion between the vertigo and the nausea and vomiting, as well as localized headache pointing to a central lesion.

Disturbances of consciousness or loss of consciousness do not usually belong to the picture of inner ear disease. The vertigo following severe concussion may be of a true rotatory type, and may persist as the only symptom for years, or may be associated with loss of memory, hearing impairment, or timitus or emotional instability. This is important to remember in compensation cases where a neuropsychiatric basis is suspected. Severe concussion may have set up a chronic labyrinthine disturbance. Vestibular tests may give a clue to the validity of the complaint.

DIAGNOSIS

The presence of labyrinthine involvement may be surmised or completely ruled out by an exact history. Any associated subjective or objective symptoms such as impairment of hearing, tinnitus, or nystagmus, strengthen the presumption that it is labyrinthine. A careful otological examination is necessary to rule out acute or chronic disease. Campbell¹² notes that a cholestcatoma may be present with a dry ear. Any or all of the recognized vestibular tests may be done. They are difficult to do and more difficult to interpret during an at-The caloric test of Barany or the Kobrak⁴ minimal stimulation method may give helpful information. Since labyrinthine vertigo is so often associated with acoustic symptoms. an audiometric test should be done in every instance. Both air and bone conduction should be investigated.

In all vestibular responses are present, either normal or proportionately exaggerated or diminished, and hearing tests show little change, both labyrinths may be presumed intact, and the vertigo is probably the earliest symptom of labyrinthine irritation. If no aural cause is found a careful neurological and general physical examination is necessary. Stress has been laid, early in this paper, on the important part played by arteriosclerotic changes of the cerebral vessels and of intoxications and allergic disturbances in the etiology of the symptom.

TREATMENT

Since rotatory vertigo may be only a manifestation of extra-labyrinthine disease, the treatment may well rest with the neurosurgeon or the internist. As regards the labyrinthine syndrome known as Ménière's disease, the treatment in the past has been almost entirely empirical. Only within the past few years have various investigators presented more or less logical theories of the underlying pathological process and these have not been confirmed in any instance entirely. However, based upon these theories, more rational methods of attacking the problem have been evolved. It is sufficient here to mention the more popular theories of etiology and the treatment based upon them.

Furstenburg¹ and his associates report for some years excellent results in a large series of cases treated by his salt-free dietary regimen, supplemented by ammonium chloride on the assumption of an increased sodium ion concentration in body tissues. They report as high as 85% complete cures or at least complete

arrest of symptoms in cases so treated when the regimen is rigorously followed. Believing the condition is due to a disturbed water metabolism, Mygind and Dederling10 advocate restriction of fluid intake to 700 c.c. daily. report loss of vertigo and nystagmus in 151 of 157 cases.

Sheldon and Horton¹⁵ use histamine diphos-Campbell¹⁵ phate parenterally administered. in 1934 reported very encouraging results. Atkinson greatly elaborates on his method, and dividing all his cases into the vasodilator (allergic) and vasoconstrictor group, administers histamine or nicotinic acid, depending on their reaction to the histamine sensitivity test. his latest report, of 110 cases of the vasoconstrictor group treated with nicotinic acid and thiamine complete relief from vertigo was obtained in 42 and improvement in 51 instances.

In the small series of cases in which the diagnosis of idiopathic Ménière's disease has been made. I have tried a combination of the above methods. For this reason, no particular method can be credited with specific beneficial effects.

During an acute attack the patient is placed in a recumbent position in bed, in a semidarkened room and given assurance that the attack is self-limited, since in the more severe paroxysms there may be a great anxiety, even to the feeling of impending death. Some form of sedation is given to reduce central excita-I have found the combination of scopolamine (gr. 1/600) and hyoscyamine (gr. 1/150) orally, as advocated by Cawthorne¹⁴ to be useful. Since fluid control is an easy measure, the intake is restricted to 750 to 800 c.c. daily.

Following the attack, a histamine skin test is done. I have not regarded too seriously the rigorous interpretation of the test as advocated by Atkinson. If this is positive, histamine desensitization is started, if negative nicotinic acid intramuscularly is given according to Atkinson's regimen. Both these forms of therapy require painstaking care. The optimum dosage, especially with the nicotinic acid group is not easy to determine.

It is often economically not feasible for rural patients to attend for treatment by parenteral methods, three or four times weekly over a period of many weeks or months. In this small group of cases, I have combined the restriction of fluids with the Furstenburg regimen, giving

them the very complete salt-free diet program as laid down by that investigator. In a series of eight cases treated with benzyl cinnamate (Jacobson's solution) in the presumed vasy constrictor group, five showed a complete tracovery, during or immediately following the first course of treatment. The attacks recurred in three of these cases within three weeks to one month.

Undoubtedly there are some cases that cannot be controlled medically. Where the severity, frequency and resultant economic and social distress of the attacks is increasing. 1r. course must be had to surgery.

Dandy15 advocates section of the vestibular division of the eighth nerve and in his hands excellent results were attained. drains the endolymphatic sac. Day17 and Goodyear18 attempt to destroy the affected labyrinth by coagulation. Campbell12 reports an excellent result following partial labyrinth. ectomy, following the Milliken technique. Mollison¹⁹ injects absolute alcohol into the horizontal semicircular canal. Lastly Mogan and Baumgartner⁵ obtained at least a very satisfactory temporary result from cervical ganglioncetomy in one case. I have had no experience with the surgical treatment of the condition.

. REFERENCES

- BRUNNER, H.: Arch. Otolaryngol., 40: 38, 1944.
 KOBRAK, F.: Schaefer Beitr., 18: 305, 1922.
- 3. ATKINSON, M.: Arch. Otolaryngol., 37: 40, 1943.
- Mogan, F. and Baumgartner, C. J.: Arch. Otolory-gol., 41: 114, 1945.
- Spiegel, E. A.: Arch. Otolaryngol., 33: 572, 1941, and 40: 170, 1944.
- Leidler, R.: Leidler and Lowy, Hanb d. Neurol d. Ohres, 3: 335, 1926.
 Mygind, S. H. And Dederling, D.: Les syndrömes Ménièriqes, Paris Presses universitaires de France. 1934.
- S. FURSTENBURG, G. R.: Arch. Otolaryngol., 34: 1050. 1941.
- DEAN, L. W.: Allergic Diseases of the Ear, Nelsons' Loose-leaf Medicine of the Ear, p. 506.
 BRAND, G. B.: J. Laryngol. & Otolaryngol., 52: 756, 1937.
- 11. Fischer, J. and Wolfson, L. E.: The Inner Ear, Grune & Stratton, 1943.
- 12. CAMPRELL, A. A.: Canad. M. A. J., 52: 605, 1945. 13. SHELDON, C. H. AND HORTON, B. T.: Proc. Staff Meet. Mayo Clinic, 15: 17, 1940.
- 14. CAWTHORNE, T. E.: J. Laryngol. & Otolaryngol., 58: 363, 1943.
- 15. DANDY, W. E.: Surg., Gyn. d Obst., 72: 421, 1941.
- 16. PORTMAN, G.: J. Laryngol., 42: 809, 1927.
- DAY, K. M.: Laryngoscope, 53: 607, 1943.
 GOODYEAR, H. M.: Laryngoscope, 53: 743, 1943.
- 19. Mollison, W. W.: Acta. Otolaryngol., 27: 222, 1939

[&]quot;Le progrès des sciences rend inutiles les ouvrages qui ont le plus aidé à ce progrès. Comme ces ouvrages ne servent plus, la jeunesse croit de bonne foi qu'ils n ont jamais servi à rien."-Anatole France.

OCCUPATIONAL THERAPY IN RHEUMATOID ARTHRITIS

Henry P. Wright, M.D., F.R.C.P.[C.]

Montreal, Que.

"Employment is nature's best physician and essential to human happiness." (Galen, 172 A.D.)

OCCUPATIONAL therapy aims to restore diseased and handicapped persons to the normal or nearly normal when possible, and when necessary it endeavours to discover for the handicapped suitable scope for productive and useful activities. Finally, if this is not attainable it tries to provide hobbies or diversions to promote in the patient a more objective and philosophic attitude of mind.

The occupational therapist is professionally trained to carry out the physician's or surgeon's prescription through the selection and adaptation of activities which meet the patient's physical and psychological needs. The therapist also provides the physician or surgeon with information regarding the patient's symptoms, reactions and progress while under treatment.

There are broadly speaking three main types of occupational therapy which are applied to the convalescent treatment of disease or injury:

- 1. Functional therapy, which has a definite objective towards the restoration of function in injured or diseased muscles, nerves or joints. This includes carpentry, painting furniture, gardening, weaving, leather work, modelling, pottery, etc. In fact, any productive work which interests the patient and at the same time exercises the desired muscles. The objective being to restore the patient to a suitable earning position.
- 2. Diversional therapy, which includes the simple arts and crafts, hobbies and allied handicraft activities. Success in this subdivision depends on psychological insight, ingenuity and unselfishness on the part of the therapist.
- · 3. Pre-occupational or pre-vocational therapy.

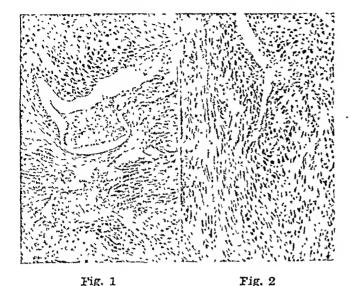
 —This comprises prescribed exploratory procedures in the sheltered workshop which are planned to develop aptitudes and interests in a specific occupation to be used as a guide to vocational training in the new trade or profession. When a patient is unable to return to his previous occupation, productive suitable work may be made available after studying motivation of the patient in conjunction with investigation through the doctor, supplemented

by the social service worker and psychological aptitude tests. An arrested uneducated arthritic's activities might vary anywhere from weaver to gardener, or in the professional field from broadcasting to librarian.

Occupational therapy should be prescribed as carefully as physiotherapy in order to obtain the desired result, and careful supervision is often necessary. It is important to prevent overwork on the part of the patient. Some form of occupational therapy is, therefore, a well recognized form of treatment for the arthritic patient and should always be included as a definite part of the hospital routine because even before active exercise is indicated the psychology of suitable mental activity contributes greatly to maintaining or restoring morale. The type of occupational therapy employed covers a wide range of activities which includes the playing of various games, weaving with small bed loom, knitting, sketching, inlaid linoleum block work, typewriting, etc.

It should be clearly understood that the work must be supervised to insure correct posture and avoidance of fatigue. As the condition improves in due course the patient should be referred to the sheltered workshop of which again there should always be one in every hospital which treats chronic conditions, as obviously occupational therapy is a form of Physical Medicine and should be closely associated with the department of physiotherapy. In hospital the ideal set-up should be under the direction of a physician who should be a specialist in physical medicine. Often in practice occupational therapy immediately follows appropriate physiotherapy, (heat, massage) which stimulates exercise at a time that is often free of pain and thus carefully selected activities provide the necessary stimulus and incentive for such movements. Conditioning with music or gramophone record often is advantageous in the early stages and in this way occupational therapy aids in muscular and joint co-ordination and hastens the return of function in injured tissues.

Finally contact with other patients at various stages of the disease has a profound psychological effect in encouraging the arthritie. surface is composed of pink muscular tissue. On section the mass is seen to contain chocolate-coloured, viscid fluid. The wall measures up to 0.7 cm. in thickness.



Microscopic.—The wall of the mass removed is composed of muscle fibres. The central cystic portion is lined by large decidual cells showing phagocytosis of blood pigment. Endometrial glands surrounded by decidual cells are present (Figs. 1 and 2).

Conclusions

A case of adenomyosis of the uterus associated with pregnancy and showing a decidual reaction in its stroma is reported. This pregnancy was present in a patient with multiple sclerosis.

A review of reported cases of decidual reaction in areas of adenomyosis is presented.

I wish to acknowledge with thanks the help rendered by Di. D. W. Penner, Assistant Pathologist, Winnipeg General Hospital, in the preparation of the

photomici ographs. REFERENCES 1. ROMITANSKY, C F. VON, Zschr. Gesellsch. Artze Wein., 1860.
2. Frankl., O. Irish J. Med. Sc., 6: 303, 1932.
3. GRIFFITH, W. S A. Proc. Roy. Soc. Mcd., 7: 389, FRANKL, O. Irish J. Med. Sc., 6: 303, 1932.
 GRIFFITH, W. S. A. Proc. Roy. Soc. Mcd., 7: 389, 1913.
 Lochrane, C. D. Pioc. Roy. Soc. Med., 15: 34, 1922.
 Ulesko-Stroganowa, K. Zentralbl. f. Gynak., 48: 1855, 1924.
 Hay, W. F. W.: J. Maine Med. Ass., 30: 260, 1939.
 Olson, H. J. And Hansmann, G. H.: Am. J. Obst. & Gyn., 32: 148, 1936.
 Rushmore, S. New Eng. J. Med., 205: 149, 1931.
 Zacherl, H. Arch. f. Gynak., 153: 224, 1933.
 Sampson, J. A.: Am. J. Obst. & Gyn., 4: 451, 1922.
 Scott, R. B.: Am. J. Obst. & Gyn., 4: 608, 1944.
 Winestine, F.: Arch. Surg. Chicago, 8: 772, 1924.
 Haselhorst, G. Zischr f. Geburtsch., 105: 1, 1933.
 Walker, A.: Virch. Arch f. Path. Anat., 107: 72, 1887; quoted by Weller, C. V.: Am. J. Path, 11: 287, 1935.
 Russel, H. B.: Surg., Gyn. & Obst., 81: 218, 1945.
 Geipel, P.: Arch. f. Gynak., 106: 176, 1916.
 Idem: Arch. f. kin. Chir., 137: 719, 1925.
 Idem: Arch. f. Gynak., 181: 650, 1927.
 White, R. J.: Am. J. Obst. & Gyn., 11: 112, 1926.
 Lange: Mon. f. Geburtsch. u. Gynak, 15: 48, 1902; quoted by Shaw, W.: J. Obst. & Gyn. Brit. Emp., 34: 28, 1927.
 Hirschberg, A.: Arch. f. Gynak., 74: 620, 1905; quoted by ref. 1.
 Lochrane, C. D.: J. Obst. & Gyn. Brit. Emp., 30: 443, 1923.
 Sackett, N. B.: Am. J. Obst. & Gyn., 42: 894, 1941. 1923.
23. SACKETT, N. B.: Am. J. Obst. & Gyn., 42: 894, 1941.
24. CULLEN, T. S.: Adenomyosis of the Uterus, Saunders, D. 246, 1908.
25. ASCHEIM, S.: Zischr. f. Geburtsch., 86: 414, 1923.
26. Idem: Arch. f. Gynak., 120: 303, 1923.
27. Idem: Arch. f. Gynak., 137: 999, 1929.
28. Ayos. J.: Zischr. f. Geburtsch. u. Gynak., 54: 171, 1905; quoted by ref. 11.

- SCHWEITZER, B.: Zentralbl. f. Gynak., 51: 935, 1927
 quoted by ref. 11.
 MEYER, R.: Ztschr. f. Geburtsch. u. Gynak., 54: 151
 1905; quoted by ref. 11.
 SAMPSON, J. A.: Am. J. Obst. & Gyn., 16: 461, 191.
 SZENES, A.: Arch. f. Gynak., 134: 546, 1928.
 WILLIAMS, J. W.: South. Surg. & Gyn. Soc. Trars., 11: 119, 1964.
 SCHAFER, P.: Arch. f. Gynak., 109: 284, 1918.
 RICHARDSON, R.: Proc. Path. Soc. Phila., 22: 53, 1911, quoted by ref. 11.
 SCHUGT, P.: Zentralbl. f. Gynak., 50: 1135, 1928.
 STONE, M. L.: Am. J. Obst. & Gyn., 35: 883, 1935.

STAPHYLOCOCCIC PYÆMIA DUE TO BREAST ABSCESS IN AN INFANT:

G. F. Meissner, M.D. and J. H. Fisher, M.D.

London, Ont.

A review of the standard Euglish and German textbooks of pædiatrics and the publications of the last twenty-five years on breast abscess in infancy, has failed to reveal one recorded case resulting in fatal pyæmia. It was, therefore, considered worth while to report this case, which presented a problem in clinical diagnosis.

R.H., a white, breast-fed, male infant, one month old, normal delivery, was admitted to the Children's Hospital on October 11, 1944, at 8.00 a.m. He had been well until four days prior to admission, at which time he was weaned owing to an illness of his mother. On artificial feeding he had not been well during the four days previous to admission, showing indefinite symptoms including some vomiting, refusal to take feedings and marked irritability.

On admission, the infant looked very ill, as if profoundly shocked. The temperature was 101°. On physical examination nothing abnormal was noted except some swelling and induration of the left breast. This was interpreted as a physiological congestion and swelling due to maternal hormones (so-called "physiological mastitis" of the new-born infant). The right breast was normal. A white blood count

showed 4,000 leucocytes, 65% of which were neutrophiles. The infant took little of his feedings. He was given interstitial fluids. In the evening a fine maculopapular rash developed on the trunk. Later he became very listless and looked very toxic; twitching of his eyes developed. He died approximately 21 hours after admission.

Autopsy findings.—An autopsy was performed 4 hours after death. The body weighed 4,130 grams (9.1 lb.) and the crown-rump length was 37 cm. The trunk and proximal parts of the arms and legs showed a patchy, reddish, maculo-papular eruption associated with which were a few scattered pustules containing minute drops of pus. The umbilical stump was normal. The left breast showed an elevated indurated swelling about 2 cm. in diameter immediately deep to the nipple and areola. Upon incising the breast tissue nipple and areola. Upon incising the breast tissue about 3 c.c. of thick, creamy, odourless pus under tension escaped from an abscess cavity. The left axillary lymph nodes were not enlarged. The right breast was normal.

The peritoneal cavity contained 50 c.c. of clear pale yellow fluid. The right pleural cavity contained 60 c.c. of faintly turbid, yellowish fluid. The left pleural cavity was normal. The pericardial cavity

contained 30 c.c. of normal fluid.

^{*}From the Department of Pathology, Faculty of Medicine, University of Western Ontario and Meek Memorial Laboratory of Pathology, Victoria Hospital. London, Ont.

The heart showed toxic myocardial degeneration but no gross abscesses. Small pyemic abscesses were present in both lungs. Some of these lay just under the pleura and a localized pleuritis had developed over them. The liver and kidneys showed cloudy swelling but no abscesses were detected in them. The spleen was not enlarged and the lymphoid follicles were not discernible. Hæmorrhages were present in the mcdulla of both adrenals.

Microscopical sections taken through the left breast showed abscesses in the fat surrounding the breast tissue and extending into the underlying peetoral muscle (Fig. 1). The myocardium showed several early pyæmic abscesses (Fig. 2). Sections of both lungs showed multiple small pyæmic abscesses (Fig. 3). The myocardium, liver and kidneys showed albuminous degeneration and the liver sinusoids were intensely congested. Fairly diffuse hæmorrhage was present in the medulla of both adrenal glands.

Cultures taken at autopsy from the breast abscess, the pleural and peritoncal fluids, the urine and blood,

were all positive for Staph. aureus.

it may develop into an abseess which should be dealt with by surgical measures as in the adult.

It seems worth while emphasizing that a unilateral swelling of the breast in an infant should not be looked upon too lightly and the possibility of its being due to infection should be kept in mind. The pathogenesis of the breast abscess in this case is in doubt. The mother denied squeezing or traumatizing the breast in any way. No obvious focus of infection was discovered. The infection of the skin developed subsequently to the disease of the breast. So far as is known infection of the

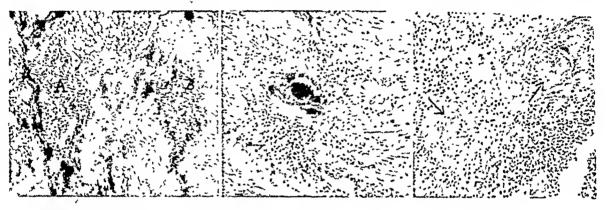


Fig. 1 Fig. 2 Fig. 3

Fig. 1.—A indicates an abscess in the fat at the periphery of the breast tissue. B is an abscess in pectoral muscle (X 120). Fig. 2.—Pyæmic abscess in myocardium. Note bacterial embolus in venule with abscess in surrounding myocardium (X 230). Fig. 3.—Pyæmic abscess in lung. Arrows indicate bacterial emboli in small pulmonary arteries with abscess formation in surrounding lung tissue (X 230).

Discussion

This is a ease of staphylococcic pyæmia originating in an abscess of the left breast and metastasizing to the skin, lungs and myocardium. The infection of the breast was probably superimposed upon a "physiological mastitis". The profound shock and circulatory collapse of the infant may be explained by the myocardial damage and hæmorrhage into the medulla of the adrenal glands but the clinical picture was not interpreted as a Waterhouse-Friederichsen syndrome.

"Physiological mastitis" is very common during the first month of infancy. It usually gives rise to a swelling of both breasts and affects both sexes equally. In the majority of cases the swelling subsides spontaneously. Lack of cleanliness and manipulation of the breasts favour retrograde infection, which is almost always unilateral. The infection may subside, resulting in distortion of the nipple and atrophy of the breast in later life, or rarely,

nose and throat did not exist prior to or during the illness of the infant.

Pyæmia in infancy is rather rarely encountered in present day practice. Young infants are unusually susceptible to infections with pyogenic bacteria, and Staph. aureus is the commonest cause of infection in the neonatal period. Lymph node activity and the phagocytic powers of leucocytes are depressed at this age. Premature and artificially-fed infants are less resistant to infection than mature and breast-fed ones. The umbilieus is a common portal of entry for infections in the newborn infant. Infections may also enter through the respiratory and digestive tracts. The primary site of the infection may not be clinically obvious (cryptogenie sepsis).

The breast is hardly mentioned as a possible source of infection in pyzmia, although the hyperzmia commonly present in the breast during the neonatal period should create a

favourable environment for bacterial growth and favour its dissemination.

SUMMARY

A fatal case of staphylococcic pyamia originating in a breast abscess in a male infant one month old is reported.

The disease ran a severe short course of about five days. This fulminating course may be explained by the known virulence of *Staph*. aureus for young infants in whom cellular resistance is low.

The breast abscess was apparently superimposed upon a "physiological mastitis". This is a rare complication.

POLYOSTOTIC FIBROUS DYSPLASIA*

Herbert M. Coleman, M.D., F.R.C.S. (Edin.) [C.]

Toronto, Ont.

The case herein reported conforms to the description by Louis Lichtenstein of a skeletal developmental anomaly affecting several bones with a predominantly unilateral involvement. The cause is unknown, but the characteristic pathological picture is a disturbed function or development of the bone-forming mesenchyme resulting in the medullary cavity filling with fibrous tissue containing bone spicules (Fig. 1). The cortex is thin and the bone broadened (Fig. 2)., A pathological fracture as in this case is usually the first indication of the dis-There is an increase in the scrum alkaline phosphatasc. The serum calcium is at the higher limit of normal, while the serum phosphorus is within normal limits. Albright has described a syndrome of fibrous replacement of bone associated with pigmented skin areas, endocrinc dysfunction, and precocious puberty in females. This patient had a small pigmented area on his back, but no endocrine disturbance.

The patient, T.A.J., aged twenty-one, was a healthy, well-developed male. Two months before admission while playing soccer he was kicked on the shin and was kept in bed for several days. A month later he was again kicked in the same place, and a roentgenogram revealed a cyst of the tibia with a crack through the cortex, and some callus formation. On admission to this hospital on August 14, 1944, he was still complaining of pain in the leg. There was nothing significant in his history and no familial bone disease was reported. On examination there was a fusiform swelling

about 4" long over the right tibia. It was firm but not tender, and there was no increase in the skin temperature. He could bear weight on the limb and had a full range of movement in the adjoining joints.

Laboratory findings.—Urine including Bence-Jones test negative; sedimentation rate 5 mm, per hour; white blood cells 5,400; serum alkaline phosphatase 9 units (Bodansky): serum phosphorus 2.7 mgm, per 10 c.c.; Wassermann negative.



Fig. 1.—Micro-photograph (X160) of tissue taken at biopsy showing fibrous tissue with bone spicules scattered throughout.

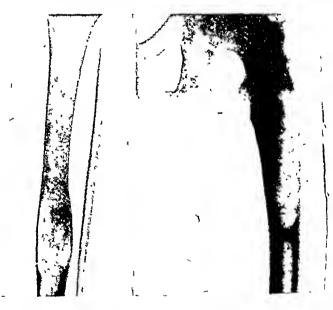


Fig. 2

Fig. 2.—X-ray of the right tibin showing the expanded shaft with thinning of the cortex and a crack through the bone. Fig. 3.—X-ray of the right femur showing a large cyst with thinning of the cortex, but no expansion of the shaft.

Fig. 3

Roentgenograms (Fig. 2) disclosed an expansile swelling of the lower shaft of the right tibia with thinning of the eortex. A crack was present through this with callus formation. In the upper shaft of the right femur (Fig. 3) there was another cystic area with thinning of the cortex but no expansion of the shaft. No other bony abnormality was discovered in the skull. ribs, humeri, forearm bones, or the opposite femur and tibia.

A biopsy was done. The cortex was thin, but of normal texture. A small section was removed and the

^{*}From the Division of Orthopædic Surgery, Department of Veterans' Affairs, Christie Street Hospital.

medullary cavity found to be packed with lease whitish fibrous tissue, rubbery in consistency and not very vascular. Some of this was taken for seviou

Pothological examination (by Dr W Bonahue -The tissue is composed of a myxomatous type of 1000 is tissue which is rather loose and cedematons Scattered throughout this area are a few areas of bone formation with some calcification. The cells are quite regular. and there is no evidence of malignancy or inflammatic (Fig. 1).

Curretting and bone grafting of the affected bones was considered, but in view of the te ported replacement of such gratts with thirms tissue, this was not carried out. At the time of discharge from hospital. October 6, 1944, for repatriation to England, the patient was having no symptoms and walked without a imp

REFERENCES

1. LICHTENSTEIN, L.: Polyostotic fibrous dystron Surg., 36: 874, 1938.
2. ALBEIGHT, F., BUTLER, A. M., HAMPTON, A. SMITH, P.: Syndrome characterized to the fibrosa, areas of pigmentation and entry function, with precocious pubert, and the England J., Med., 216: 727, 1937

CUTANEOUS MYLASIS OCCURRING IN WESTERN CANADA

Leo Lewis, M.D.

Medicine Hat, Alta

Cutaneous myiasis is an infestation of the skin and subcutaneous tissues by locus of Wohlfahrtia vigil, commonly known as the fless fly. The disease is relatively rare. This firms a human and animal parasite and is found only in Canada and northern U.S.A.

Considerable work on the subject has been presented by Walker of the University of Toronto who reported in 1931 a total of 6 cases since 1919. A further four cases were reported in the Toronto area in 1934. Other cases have been presented by Gertson,3 Sanders,4 Vandersluis, Charles and Whitmore⁵ in the United States. In a personal communication Dr. E. H. Strickland, Professor of Entomology. University of Albeita advises that cases have occurred in Alberta all the way from Athabasca Landing to the International Boundary but these have not been noted in the literature to date.

All cases but one have been reported in infants under one year of age. The small abscess-like lesions appear on the chin, neck, shoulders and arms. The fly is said to usually lay its larvæ on the skin of the child while it is lying out of doors, or in a non-fly-proof room, and initially near the eyes, where it is attracted by tears. The larvæ seek cover and move to the skin folds of the neck beneath the upper clothing. Their saliva is said to digest the skin and they enter

and feed, and a lesion results. A small opening at the apex of the lesion frequently suggests pus and has occasionally led to a mistaken diagnosis of impetigo or furunculosis. On close examination the small white apex is seen to be a maggot and on pressure, it can be forced out of the

As described by Norma Ford,2 the insect Wohltahitia rigil, is closely related to the house the and blow fly, or blue bottle. On the other hand it is parasitic on living tissues. All inusted intants have been noted as sleeping unprotected out of doors. In the case presented. the miant was said to have been inside. However there were many flies inside this house and because of poor sanitation, no protection from thes was present.

The patient, a two weeks' old female child, previously ormal and in good health, was brought in from a farmuz community in south western Saskatchewan. recognited 24 hours before admission, the mother noticed we 'rel pumples' on the shoulders, back of neck. became for er and the baby was very cranky and would not take to teenings, and as the rash grew worse, the curious not reclical attention. She said that she had the upression that in one of the lesions she could

Or a regation the baby was found to be a normal or a command of the color was found to be a norman of the color was generally flushed and color of the color that they presented momentarily the appearance of having white apies, alternately followed with what appeared to be small orifices of 2 mm, in diameter. The kin was generally covered by a fine diffuse erythema. With a slight pressure to each lump, a section of what appeared to be a magget could be expressed, and with a little added pressure, it was possible to express a maggot from each lesion. Only one larva was expressed from each lesion, although it has been reported in other cases that more than one are occasionally present. On expression of the magget a small gob of purulent material followed. It was not necessary to morse the lesions to remove the offending organism. The maggets were white, round and segmented, and measured up proximately 4 to 8 mm, in length. Several of the proximately 4 to 8 mm, in length. Several of the maggets were placed in an alcoholic solution for parnu logical examination. It was noted that they lived for a short time in this solution.

The baby was placed on 5,000 units of penicillin every three hours, and local boric acid soak- were applied. The temperature fell to normal in 9 hours and in 48 hours all the lesion- had disappeared. The baby resumed normal feedings and was able to return home as cured.

The blood count on admission showed, white blood count 23,650. Hb. 100%, polymorphonuclears 38%, lymphocytes 57%. eosinophils 2%, monocytes 3%. urine negative.

The maggots were forwarded to the University of Alberta, Pathology Department and identification was made there with the kind assistance of Dr. Strickland as those of the flesh fly, Wohlfahrtia vigil.

REFERENCES

WALKER, L. M.: Canad. Pub. Health J., 22: 504, 1931.
 FOED, N.: J. Parasitol., 22: 309, 1936;
 GEETSON, G. D.: J. Am. M. Ass., 100: 487, 1933.
 SANDERS, H. C.: New Eng. J. Med., 199: 38, 1928.
 VANDERSLUIS, C. AND WHITMORE, D. D.: Minn. Med., June, 1938.

CLINICAL and LABORATORY NOTES

THE USE OF A METALLIC GLENOID RIM IN RECURRENT DISLOCATION OF THE SHOULDER'

H. F. Moseley, D.M. (Oxon.)

Montreal, Que.

The last few years have seen the gradual acceptance of Mr. Bankart's concept of the pathological lesion in recurrent dislocation of the shoulder, i.e., the torn glenoid labrum with the detachment of the capsule from the anteroinferior aspect of the rim, permitting the displacement of the humeral head directly forward, deep to the subscapularis tendon and muscle.1, 2, 3, 6, 7

Many have found the operative repair of this defect most difficult and some able surgeons have expressed the opinion that satisfactory

repair is impossible.

Suture of the capsule to the freshened bone of the glenoid is difficult because of the necessity to place 3 or 4 drill holes in this bony rim. The volsellum forceps and cobbler's awl suffice in some cases but are unsatisfactory and are best replaced by the right-angled dental endpiece attached to a motor or hand drill.4 This together with the use of a crochet hook as suture carrier and special retractor make the operative repair technically much easier. The exposure is especially arduous in the well-developed male of sthenic habitus.

Sooner or later, however, all surgeons operating upon these cases will discover some in which the bony rim is fragmented or brittle, and a satisfactory fixation of the capsule to bone cannot be accomplished. These are usually cases which have had frequent forcible dislocations such as occur in inadequately controlled epileptics.

Some workers have been content to suture the capsule to adjacent periosteum or soft tissues while others have employed staples for

It was for such cases that I devised a metallic rim (Fig. 1) which could be fixed to the neck of the scapula and which contained the holes for the suture of the capsulc to the bone on the joint side of the prosthesis, which is thus placed in an extra-capsular position. In view of experience with the stainless steel plates and screws in fracture work it was felt that the rim would become firmly fixed to the scapula and would offer a much more stable and permanent barrier to the forward displacement of the head than could be obtained by the use of bone grafts.5

The following is a description of the case on which this preliminary report is based.

CASE REPORT

The patient was a female aged 26, a poorly controlled

epileptic.

Initial dislocation in April. 1945, during a seizure. Innumerable dislocations since, occurring practically every day. Dislocation occurs straight forward and every day. can be reduced by direct pressure backwards on the head. Marked crepitns present over the front of the joint when this occurs.

Operation, December, 1945 .- Anterior approach, with the tip of the coracoid and attached muscles turned

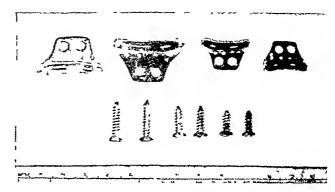


Fig. 1.—The glenoid rim of stainless steel. The holes for screws and sutures can be readily seen.

downwards. Joint opened by section of subscapularis tendon and capsule near the glenoid edge. The labrum was detached for approximately 114" from the anteroinferior area. A ponch existed deep to the subscapularis tendon and muscle and anterior to the neck of the scapula into which the head dislocated.

The bony rim of the glenoid was fragmented and only one drill hole in the upper part could be made. The neck of the scapula and deep surface of the sub scapularis were therefore scarified and the capsule sutured to the periosteum and adjacent soft tissues The subscapularis was plicated in its resuture and the tip of the coracoid was stitched to the lower part of the repaired subscapularis to increase scarring.

Postoperative course.—The patient had a seizure on

coming out of the anæsthetic which may have damaged

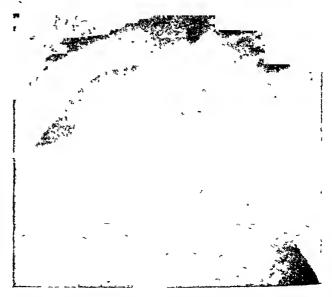


Fig. 2.—X-ray showing the false joint in the snb-Also the posterior notch from luxated position. recurrent dislocations.

^{*} From the Fracture Clinic, Royal Victoria Hospital, Montreal.

the repair but at the time the arm The T L 17 14 to the side. On October 28, the patien 13-13 , and It was easily possible to push the he ! 1 position with much crepitus over the trans (Fig. 2) show that there is the trans. false joint cavity in the subluxated to-

In view of this and the marked - 1 L associated with pain it was decide . . .

apply a metallic glenoid rim.

Operation, November 25 .- The an e.c. used. On section of the subscapular a rim, the failure of the original rep.ithe formation of the false joint unit neck of the scapula. The glanoid but fragmented and the head of the hame degenerative changes.

PEFERINGES

BINARY, A. S. B. Recurrent or habitual dislocation in the shoulder joint, B-st. M. J., 2: 1121, 1913.

Hem The pathology and treatment of recurrent dissocition of the shoulder joint, Brit. J. Surg., 25: 23 1933

BOST

LAMBERT, R. G. AND HOROWITZ, T.: Three instruments lest-ned to facilitate the Bankart operation for re-urent dislocation of the shoulder.

LEV PULNT, C. Le traitement de la luxation r-cid-artr de l'epaule par la création d'une butée d'ellev H. F. Recurrert descation of the shoulder, Par Roy Sac Med, 29: 172, 1935 from shoulder Lesions, Charles C. Thoma. Spring-field 1145.

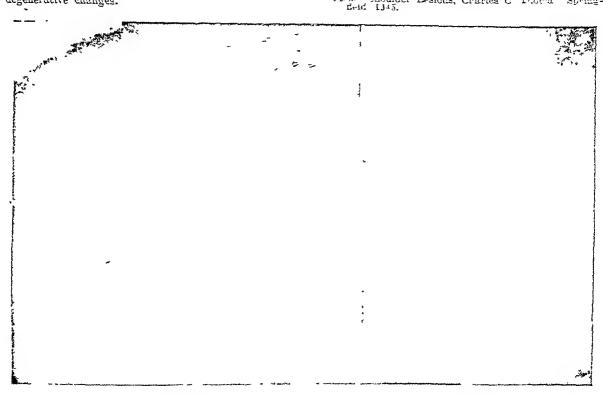


Fig. 3

Fig. 4 Fig. 3.—Antero-posterior view showing prostness in position. The rim was placed at operation to

antero-medial to the normal position of the glenoid rim, allowing room for the eature of the earstle in Fig. 4.—Supero-inferior view with prosthesis in position. The marked tra.mc*. the anatomical site. arthritis can be seen.

The glenoid rim was freshened to expose raw bone and the metallic prosthesis applied, using two 14' screws The capsule was sutured to the bony surface on the joint side of the metallic plate. An excellent closure of the joint cavity was thus obtained and the head appeared to be stabilized by this repair. The subscapularis muscle and tendon were repaired over this vitalliam The wound was then closed

Postoperative course.-The patient was kept under heavy sedation for ten days with the arm bandaged to her side. After this period she was allowed to move the elbow and hand. The arm was maintained for four weeks in the adducted position. X-rays show the posi tion of the rim (Figs. 3 and 4).

COMMENT

This is the first case treated with the metallic glenoid rim. The writer feels that there is a limited field for such a prosthesis which experience in its use may enlarge.

SPECIAL ARTICLE

"NO DISEASE"

Alexander R. MacLean, M.D.

Section on Neurology, Mano Clinic Rachester, Mirresuta

[After some remarks of a general native, proper to a commencement address, Dr. MacLean commenced;]

The psychiatric problem which this war has brought to a focal point soon will be demonstrated to the public in a manner which cannot be dismissed or denied. The people of the United States and, in all likelihood, of Carada

^{*}Commencement address. University of Maniatic School of Medicine, Winnipeg. July 18, 19461

will be faced with a situation for which they have been poorly prepared as a result of popular misconception of psychiatric principles, distorted sentimental concepts of functional disability and exaggerated statements as to the efficacy of psychotherapy. Psychiatry must explain, candidly and in simple language, the underlying reasons for its failures in the prevention and treatment of the psychoneuroses and related disabilities of war; it must explain before the ruthlessness of statistical analysis discloses not only inadequacies, but the concealment of facts which are essential for the future, healthy development of our civilization. It must place blame where blame is due and must not shrink from self-criticism.

Customarily, in war, two words have been used to describe the intangible realities which win or lose battles: "courage" and "cowardice". Courage I take to be not absence of fear because few are free of that. Courage, as it usually is encountered, is that moral quality, in the face of fear, difficulty and danger, from which springs unselfish conduct. Cowardice. on the other hand, is the quality which, when fear is a motive, results in selfish beliaviour that is contrary to the mores of the group. In the late war the word "cowardice" seldom, if ever, was heard because of the recognized difficulty in distinguishing it from a type of psychoneurosis which is the expression of an illness of the personality rather than of moral guilt.

Prior to the evolution of psychiatry, a man was judged by his acts in battle, which were either courageous, neutral or cowardly. was expected to be a responsible, moral individual, with the ability to distinguish right from wrong; an individual who had a will, capable of directing his actions according to the dictates of his intellect and appetite. There was little recognition of the effect of environment, in terms of conditioning in childhood and of formation of habit patterns. The realm of the subconscious mind remained relatively unexplored. The act of an adult was judged by its apparent motivation and consequences. In fact, there were simply courageous men and cowards in peace and war.

In the last quarter century, however, the causes of behaviour of adults have been traced to behaviour of the same individuals as far back as intra-uterine life. The normal, integrated psyche has been dissected in its varied evolutions through the realm of the subconscious mind. The abnormalities of personality have been grouped in broad classifications of psychosis, psychopathy and psychoneurosis and their origins have been found in an irresponsible psychogenesis. The result is that a large number of those who profess knowledge of the mind are convinced that man is a relatively irresponsible organism, the product of instinct and environment; that he is an animal whose behaviour is determined by psychologic and

biological laws acting within an ever-diminishing framework of choice in decision.

With this increasing popular recognition of the impact of an individual's past on his present and future behaviour, the ethics of our civilization have correspondingly been interpreted in freudian and behaviouristic terms. Morality is defined in words of instinct and the conditioned reflex, and this scientific language, although it does not change the essence of the thing described, serves to remove the stigma of amoral action. And yet if we are to admit that there are such qualities as courage and fortitude, we must equally insist that there are cowardliness and weakness of character. For if we turn our faces away from the possibility of unethical behaviour, the decorations of our men for valour in battle, and our verbally expressed appreciation of the sacrifices that men have made of their limbs and lives in the defence of their country, become worthless, hypocritical rewards given by a cynical people.

During the past four years, my work was with men who failed the test of war. With other psychiatrists, I met them in the induction line. outside the continental limits, and in the hospitals of the mainland. These thousands who failed were weighed by competent observers, who delved into their past environment, into their childhood reactions and into their family lives With rare exceptions, the minor disorders of personality which prevented these individuals from performing their military duty to their country, could, with varying degrees of effort. be traced to broken homes, unhappy family lives and unstable fathers and mothers. Nevertheless, war has not created new mental dis-In time of peace, individuals who suffered from functional disorders were driven by necessity to work and adjust to some level of scholastic, occupational, social and marital adaptation. At no time were they released by society from the responsibility and discipline of meeting the demands of life. They accepted their relative disabilities as personal problems, which they They were forced to themselves had to solve. face the situation, with psychiatric help or without it, and to assume obligations of social and economic import. In military existence, however, tens of thousands of these individuals discovered that their symptoms were sufficient to excuse them from the labours, uncertainties and dangers of war. They found that now there was nothing to be expected from enduring their symptoms except hardship and perhaps death. There was no penalty for failure; weakness was rewarded, and uncounted numbers took conscious or subconscious advantage of this attitude and rendered their disabilities absolute instead of relative. Whereas in civilian life they had been anxious for all the aid that medical science had to offer, and had attempted to make a readjustment in living, when they were in uniform untold numbers resisted therapy and searched for new nervous symptoms to thwart return to duty.

Further, possessed of honourable discharges, they returned to their families with documentary proof that they were victims of disease and war and were not responsible for helping themselves. Yet they were intrinsically no different than when they enlisted. As their lives had demonstrated to their acquaintances and families that they had been eapable citizens prior to their enlistment, their discharge from service so involved their pride that many protracted their symptoms for extended periods of time after their release.

I hope not to be misunderstood and yet I recognize that what I have to say can easily be misinterpreted. I do believe that there is such a thing as eowardice. If I am correct, there are at least two kinds of it: first, a callous, unmixed selfishness; second, a component of psychoneurosis containing fears which an individual could conquer or allay sufficiently to allow him to carry on his duties. I believe, on the other hand, that there are psychoneurotic disorders the symptoms of which an individual cannot conquer or allay sufficiently to allow him to carry on his duties. He is, therefore, not responsible for his failures.

Yet there remains to be described an intangible reality of conduct, for estimating which, as displayed by the individual, psychiatry has neither the moral nor the legal qualifications, a reality which resides in the ethical conscience of a people. I am not certain that civilians are competent to judge or describe the actions of men who have lived a strange and different life, interlaced with the fear of death. I am certain. however, that the men who have endured and who have remained in service in spite of the temptation to seek exit through the wide open portals of psychiatric discharge, have a right to personal opinions and judgments of behaviour which should be respected. The descriptive words they use in relation to men who left them in the teeth of danger and returned to eivilian life capable of work and life as they had known it in the past, are perhaps unthinking and certainly often are profane and vulgar. In their unscientific, descriptive terminology, nevertheless, there is a thread of justice and truth. For. to say it once again, nearly all men have fear and know insecurity, frustration and exhaustion, and most of them have known adult tears. Men who stayed in uniform saw other men leave for home because of symptoms which they themselves concealed and endured, which they recognized in themselves as seeds of weakness and eowardice and which they considered it to be their duty to conquer. The symptoms of depression of spirit, anxiety, trembling, sweating, anorexia, sleeplessness and gastro-intestinal upsets with exhaustion, were not sufficient in themselves to make most men choose to desert their fellows. The lack of another quality was necessary and that quality remained on an ethical and moral plane. In the psychoneurotic individual there appears a taint of selfishness, not in terms of avarice or reprehensive acquisitive-

ness, but in terms of disregard for others. These individuals are so concerned with bodily and nervous symptoms, their fears, their hopes, their disappointments, that perception of the value of group sacrifices, personal honour and pride diminishes and vanishes under stress and The psychoneurotic person may have been trained since childhood in habits of selfishness by selfish progenitors who broke their homes because of lack of the spirit of sacrifice, and who perverted parental conduct in a-parental On whom does the responsibility rest: on the patient, on a parent, a grandparent or a great-grandparent? Who can say? However, we can say responsibility must reside in some generation.

That the disease, psychoneurosis, contains ethical defections, which may be conscious or unconscious, the results of habit or example, appears patently obvious to the nonpsychiatric observer. These observers are prone to judge solely in terms of ethics, having little knowledge of the impact of a man's past on his present and future. On the other hand, they appear to have an insight which psychiatry, in its introspection, seems to have lost in a jungle of descriptive words and phrases, an insight into the moral fibre of men at war.

Having seen men with the fear of death in them face danger, most of us who served in the medical departments of the armed services are unwilling to deny that there is such a thing as courage. We were impressed with the relative stareity of disabling nervous symptoms among forces exposed to privation, hardship and battle outside the continental limits. And yet, on returning from overseas, those of us in the psychiatric departments of naval hospitals of the United States found that we were flooded with patients who were disabled by the functional conditions associated with war. discovered that these disorders, which had oecurred sporadically overseas, and which were controllable by psychiatric management. in this continent were endemic and out of hand. We failed spectacularly in returning men to a full duty status. I am unable to give percentages or even to hazard them. I can only visualize the meagre driblets of men returning to duty as compared to the flood discharged for psychiatric reasons.

I do not believe that this was a result of our therapeutic inefficiency. The medical departments of our armed forces did not obstruct in any way the application of new techniques or the full use of psychiatric knowledge and personnel. It remained a fact, however, that some concept, some mechanism, some component of the so-called psychoneurotic states for which these men were discharged, failed to function or adequately to respond to care. With the insight into the nature of courage that our duty overseas had given us, I and many others became convinced that we were now dealing with two large divisions of functional disability. One of these was a disease

of psyche, the pathogenesis of which could be traced to evolution of the personality; the other was an ethical defection, loss of military morale. This ethical defect was often indistinguishable from its psychonenrotic counterpart. It mimicked the irresponsible disorders of the mind, resisted psychotherapy and appeared virulently contagious. This amorality of war did not appear to be limited to the psychoneurotic individual, for normal men and women, in and out of military life, appeared tainted with it. Often it appeared to spread from a civilian focus as a secondary, ethical disorder, the complications of which disabled men in a military sense.

The word "morale" is a polite one, the essence of which I am muable to define. I believe that to possess morale one must have a goal for thought and action: that morale contains, or results in, self-confidence, loyalty, trust and honour. In some of its aspects it is the identification of self with a group and its values vary from civilization to civilization, and from time to time in the same people. I prefer to think of it as a moral virtue no different in peace than in war, a virtue charged with forti-

tude, courage.

Because most of us believe that man bears a moral responsibility for his acts, and because we also believe that these acts can be coloured and interpreted in the light of past conditioning and experience, it is understandable that diseases of psyche and defections of morality can be confused in such a manuer that they can be separated with the greatest of difficulty. I am not certain that anyone can separate them in an individual and accurately weigh one against the other. Certainly psychiatry has no scientific test for fraud. It cannot differentiate the malingerer from the psychoneurotic person by an objective method nor can it quantitatively assess the degree of conscious exaggeration of symptoms by one who is troubled with a functional disability. And yet, in dealing with large groups of men, moral virtues and defections become obvious. In the unscientific past, as has been said, the realm of the diseased psyche was unexplored and abnormalities of behaviour were explained solely on moral bases. Now it would appear that the pendulum of psychiatric opinion has swung too far in the direction of man, the biologic automaton, and that psychiatrie terminology has been perverted to uses in the field of ethics so that man ean neither be cowardly nor weak and so never ean be enduring or courageons.

An explicable but tremendous error was made in the first world war by the coining of the term "shell shock". This gave an organic classification to what was thought to be a psychic disorder. Has not psychiatry made a similar mistake in calling many of the functional disorders of this war "psychoneurosis"? In the last few months of combat, the psychiatric department of the United States Navy gave us a new diagnostic label "no disease

(unable to adapt to further service)". I believe that this is the disorder of morale, called very wisely "no disease", which was responsible for a large part of our therapeutic failure. To date, psychiatry has willingly accepted the full responsibility for this failure because it has identified loss of morale with a disease of psyche.

If this confusion continues, we must bear the full consequences. Ethical defects concern the whole of our society and people should know the implications of a disorder, bred in the North American continent, which rendered many thousands of men unfit for combat. This problem did not begin with war, nor will it end now that peace is here. When we weigh the social life of the United States in the balance scales of psychiatry and ethics, we can distinguish the same difficulties that beset the psychiatrist in the armed forces. What part did our brand of civilization play in the unwillingness of men to lose their lives in its defence? How much of the abnormalities of behaviour that fill our prisons and divorce courts, and which break our homes, results from irresponsible disorders of the mind and how much springs directly from moral defects?

Most of us knew too many men. who, with the fear of death in them, nevertheless died. We knew too many old, tired men hanging on beyond their endurance in a young man's war and we saw too many fathers of large families sacrifice their jobs, their futures and their children's right to happiness, not to speak for them and to insist that they did not act as irresponsible automatons. In spite of some behaviouristic and freudian concepts, they demonstrated selflessness and courage. In defense of courage in peace as well as in war, I believe it to be the duty of psychiatry to re-evaluate the functional disabilities of our civilization in the light of ethical principles of conduct as well as from the standpoint of theories related solely to

psychogenesis.

The psychonenrotic disabilities of peace which will constitute 50% or more of your future practices do not differ essentially from those en-Among your patients you countered in war. will discover those whose disease should be called "no disease", whose illness is a result of selfishness and lack of conrage, but among those suffering from functional complaints you will recognize disorders of psyche distinct from ethical defects. I do not believe that we, as men of medicine, are qualified to judge others on an ethical plane but I do believe that it is our duty to scrutinize our personal as well as our national lives as though we were responsible eitizens capable of distinguishing right from With death as the possible reward for possession of morale, the lack of it in battle can be understood. Can we through some distorted psychiatric concepts, excuse the loss of civilian Should we disguise our virtues — morals? psychiatric failures and thus lose the scientific virtue-truth?

THE CANADIAN MEDICAL ASSOCIATION

Editorial Offices-3640 University Street, Montreal

(Information regarding contributions and advertising will be found on the second page following the reading material.)

EDITORIAL

NATIONAL CANCER INSTITUTE OF CANADA

T the conclusion of a two-day conference A in Ottawa, during January, a National Cancer Institute was launched to co-ordinate all Canadian cancer control work into a concerted, well-financed attack on the disease from every aspect. The Conference was attended by some fifty outstanding men and women in the fields of medicine, science and public affairs. The success of the Conference was due to the efforts of three men in particular, the Honourable Paul Martin, K.C., Minister of National Health and Welfare, Dr. G. D. W. Cameron, Deputy Minister, and Dr. Clarence Routley, General Secretary of our Association, whose administrative experience solved many a knotty problem in the discussions.

The need for co-ordination of effort made the conference not only timely but overdue. The Honourable Mr. Martin put it aptly, saying, "the social instinct of the public is disturbed at the lack of progress being made in cancer control".

Cancer still ranks as the second highest cause of death in Canadian mortality records. During the period of World War II, that is, 1939-1945, close to 80,000 men and women died of cancer, contrasted with 38,834 war casualties, killed and missing. The war cost Canada close to \$19,000,000,000.00. The amount spent on cancer control for the same period amounted to not more than \$5,000,000.00.

Our Canadian attack on cancer has been in the nature of guerrilla skirmishing. The program of the National Cancer Institute calls for total mobilization. This includes not only funds but also educational effort, research workers, and diagnostic and treatment facilities organized into a superb striking force under a united command.

Certain trends have been observed by the Bureau of Statistics to account for the increase in cancer mortality during the fourteen year period 1931-1944:

- 1. There is an increase in the older age age group of the population in Canada (the cancer age).
- (2) 52% of the deaths from cancer were found in the digestive tract and the peritoneum.
- (3) 34.4% of the cancer mortality in women was located in the uterus and breast.
- (4) 16.2% of the cancer mortality in men had its site in the genito-urinary tract.
- (5) Deaths from cancer of the buccal cavity and pharynx, digestive tract and peritoneum, respiratory organs and skin are more common in males than among females.
- (6) Using standardized cancer mortality rates, Quebec showed the highest, 106.8 per 100,000, whereas Prince Edward Island and Saskatchewan had the lowest, 83.6 and 85 per 100,000.

The physicians of Canada are troubled about their ineffectiveness in the war against cancer. Up to the present, practitioners have tried to do their part in educating the public to seek early diagnosis and treatment at the nearest available special centre. From that point on they have been prepared to await the conquest of cancer through a coup de grâce delivered by trained laboratory scientists.

There does remain, however, a weapon physicians can use with great effectiveness. We refer to the data learned from epidemiology and case analysis. Physicians are the first group to come in contact with cancer sufferers. If all case records were exhaustively analyzed, some significant lead might be found which could be followed up by a research epidemiologist. By this means alone, some 10,000 physicians could be brought into the field as cancer research workers in Canada.

Once the National Cancer Institute gets into its stride, one of its immediate objectives will be the enlistment of every physician in the preparation of careful case records. This contribution of the men engaged in general practice may prove most fruitful.

In addition to the preparation of more careful case records, physicians throughout Canada should consider it their responsible

duty to submit to the National Cancer Institute any possible angle of attack which might occur to them to meet further cancer control. Any idea related to cancer, no matter how fanciful, should be forwarded to the Institute in sure knowledge that the project will receive careful consideration and due credit given if the idea shows sufficient promise to set up a special study under the supervision of a trained scientist.

To waste no time in getting on with the job while the National Cancer Institute is being legally incorporated, an Interim Committee was appointed by the Conference with power to proceed in dealing with grants and research projects. The members of this Committee are as follows: Dr. A. W. Blair, Chairman: Dr. G. E. Richards, Alternate Chairman; Dr. Lyman Duff; Dr. L. C. Simard; Mr. J. G. Stephenson; Dr. William Boyd; Dr. J. H. Baillie; Mr. F. G. Butterfield; Dr. H. G. Grant: Dr. Charles Vézina; Dr. C. H. Best; Dr. G. E. Hall; Dr. G. D. W. The Executive Secretary of the Cameron. Interim Committee is Dr. J. L. Little, with temporary headquarters at the Jackson Building, 6th Floor Annex, Ottawa.

With such a Committee, it is confidently expected new shock tactics are going to be employed to control cancer throughout the length and breadth of Canada.

EDITORIAL COMMENTS

Retirement of Dr. Gerald Horner

We learn that Dr. Gerald Horner has relinguished the editorship of the British Medical-Journal. Dr. Homer has held this post since 1928, and his retirement is a reminder of the high estate to which he attained in editorship. Much of an editor's work is unrecognized, even if it is realized, but the fine standard of medical journalism maintained in the British Medical Journal throughout Dr. Horner's direction, is a lasting monument to his ability. In no period has this been more evident than during the last seven years, when the stress of war and rehabilitation added so enormously to his burden. He is suceeded by Dr. Hugh Clegg who has been assistant editor since 1934.

MEDICAL ECONOMICS

INCOME TAX INFORMATION

For the particular benefit of demobilized medieal officers who may not be aware of the income tax requirements, the following information is supplied. Income from Service pay and allowanees while overseas on the strength of an Overseas Unit outside the Western Hemisphere and for the first six months of service in the Active Service Forces following return to Canada, is not taxable. All other income is, however, subject to income tax, hence any earnings subsequent to release from the Service must be reported to the Inspector of Income Tax.

As practising physicians may claim deductions for professional expenses, it is possible that, in the ease of some ex-officers commencing practice late in 1946, professional expense might actually execed professional income for the period of practice. It is therefore important to know that deductions for professional expenses are admissible only against income from professional services and not against income from any other

The practice of making quarterly instalment payments on income tax may be new to certain of our members, and the rule in this connection is as follows:

Individuals whose income — (a) is derived from earrying on a business or profession (other than farming); (b) is derived from investments; or (c) is more than 25% derived from sources other than salary or wages, are required to pay their estimated tax by quarterly installments during such year. Each payment must be sent in with Installment Remittance Form T.7-B Individuals. Any balance of tax is payable with interest with the T-1 General return which is due to be filed on or before April 30 of the succeeding year.

The following timetable indicates the returns required during 1947:

A. Doctors NOT receiving salaries amounting to 34 of income:

Date Due Forms to be Used T.7-B Individuals, 1947 March 31, 1947 April 30, 1947 T.1-General, 1946 (Note: Doctors should not use T.1 Special regardless of income) T.7-B Individuals, 1947 June 30, 1947 T.7-B Individuals, 1947 September 30, 1947 T.7-B Individuals, 1947 December 31, 1947

B. Doetors receiving salaries amounting to 34 or more of income:

Forms to be Used Date Due T.1-General, 1946 April 30, 1947 Whenever Status T.D.-1 is changed^e

^{*} With respect to new employer, marital status, dependents.

Doctors who pay salaries to their own employces should send in Form T-4 by the end of

February each year.

For income tax purposes all salaries are net Therefore doctors must pay tax on the total amount they receive as salary It has been urged by the Ontario Medical Association that doctors arrange with their employers to such items as automobile costs and medical tees, to be paid either directly by the employer or to the doctor as expenses over and above the salary

DOMINION INCOME TAX RETURNS BY MEMBERS OF THE MEDICAL PROFESSION

As a matter of guidance to the medical profession and to bring about a greater uniformity in the data to be furnished to the Income Tax Division of the Department of National Revenue in the annual Income Tax Returns to be filed, the following matters are set out

Income

1. There should be maintained by the doctor an accurate record of income received both as fees from his profession and by way of investment income. The record should be clear and capable of being readily checked against the return filed. It may be maintained on eards or in books kept for the purpose

Expenses

2. Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

(a) Medical, surgical and like supplies

(b) Office help, nurse, maid and bookkeeper laundry and malpractice insurance premiums. (It is to be noted that the Income War Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to the income)

(c) Telephone expenses; (d) Assistants' fees;

The names and addresses of the assistants to whom fees are paid should be furnished. This information is to be given each year on Income Tax form known as Form T.4, obtainable from the Inspector of Income Tax.

(c) Rentals paid;

The name and address of the owner (preferably) or agent of the rented premises should be furnished [see (j)];

(f) Postage and stationery;

(g) Depreciation on medical equipment;

The following rates will be allowed provided the total depreciation already charged off has not already extinguished the asset value:

Instruments costing \$50 or under may be taken as an expense and charged off

in the year of purchase.

Instruments easting over \$50 are not to be charged off as an expense in the year of purchase but arc to be capitalized and charged off lateably over the estimated life of the instrument at depreciation rates of 15 to 25%, as may be determined between the practitioner and the Division according to the character of the instrument, but whatever rate is determined upon will be eonsistently adhered

Office furniture and fixtures—10% per

annum.

Library-The cost of new books will be allowed as a charge.

(h) Depreciation on motor cars on cost:

Twenty per cent 1st year: Twenty per cent 2nd year; Twenty per cent 3rd year; Twenty per eent 4th year; Twenty per cent 5th year;

The allowance is restricted to the car used in professional practice and does not

apply to cars for personal use.

For 1940 and subsequent years the maximum cost of motor car on which depreciation will be allowed is \$1,800.

Automobile expense; (one car)

This account will include cost of licence, oil, gasoline, grease, insurance, garage charges and repairs;

Alternative to (h) and (i) for 1940 and subsubsequent years

In lien of all the foregoing expenses, including depreciation, there may be allowed a charge of 41/2e. a mile for mileage covered in the pertormance of professional duties. Where the car is not used solely for the purpose of earning meome the maximum mileage which will be admitted as pertaining to the earning of income will be 75% of the total mileage for the year under consideration.

For 1940 and subsequent years where a chauffeur is employed, partly for business purposes and partly for private purposes, only such proportion of the remuneration of the chauffeur shall be allowed as pertains to the earning of income

(j) Proportional expenses of doctors practising from their residence

(a) Owned by the doctor.

Where a doctor practises from a house which he owns and as well resides in, a proportionate allowance of house expenses will be given for the study, laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, depreciation and interest on mortgage (name and address of mortgagee to be

(b) Rented by the doctor.

The rent only will be apportioned in-

asmuch as the owner of the premises takes care of all other expenses. The above allowances will not exceed one-third of the total house expenses or rental unless it can be shown that a greater allowance should be made for professional purposes.

(k) Sundry expenses (not otherwise classified)—The expenses charged to this account should be capable of analyses and supported by records.

Claims for donations paid to charitable organizations will be allowed up to 10% of the net income upon submission of receipts to the Inspector of Income Tax. This is provided for in the Act.

The annual dues paid to governing bodies under which authority to practise is issued and membership association fees,* to be recorded on the return, will be admitted as a charge. The cost of attending postgraduate courses or medical conventions will not be allowed:

(l) Carrying charges:

The charges for interest paid on money borrowed against securities pledged as collateral security may only be charged against the income from investments and not against professional income.

(m) Business tax will be allowed as an expense, but Dominion, Provincial or Municipal income tax will not be allowed.

PROFESSIONAL MEN UNDER SALARY CONTRACT

3. It has been held by the Courts that a salary is "net" for Income Tax purposes. The salary of a Doctor is therefore taxable in full without allowance for automobile expenses, annual medical dues,† and other like expenses. If the contract with his employer provides that such expenses are payable by the employer, they will be allowed as an expense to the employer in addition to the salary paid to the assistant.

MEN and BOOKS

SOME ESKIMO REMEDIES AND EXPERIENCES OF AN AMATEUR DOCTOR AMONG THE LABRADOR ESKIMO

Rev. F. W. Peacock

Nain, Labrador

In ancient times the shaman or witchdoctor (angaKoK) had the monopoly of healing among the Eskimo, but with the passing of the office of the angaKoK the ordinary people (inutninait) became heirs to some of the old remedies used by the angaKut who, incidentally, combined in themselves the office of prophet, priest and doctor.

One hundred and seventy-five years ago the Moravian Mission started work among the Labrador Eskimo. A few of these missionaries were trained medical men, and of the remainder nearly all received some instruction in the use of medicine, many indeed were homeopaths. For a number of years a hospital was operated at OKaK and for a few years a cottage hospital with a resident nurse was operated in Nain with the help and support of the Hudson's Bay Company. But for the past 30 years there has been no resident medical man on the northern part of the Labrador Coast. Doctors from the International Grenfell Association make an annual trip to this part of the Labrador and doctors of the R.C.A.F. have visited the four northern Labrador settlements in response to appeals for help from the Moravian missionaries. The Moravian missionaries with elementary training in medicine and surgery learn much from doctors who visit the coast, and these doctors are willing to impart knowledge to the missionaries because they realize that the health of the Eskimo is in the hands of the missionaries. Nevertheless among the Eskimo, as among villagers in England, and probably Canada, the old fashioned remedies used by "grandmother" or "grandmother's grandmother" still persist. But before we proceed to a brief study of some of these remedies we will note a few of the major diseases of the Eskimo.

The most fatal disease among the Labrador Eskimo is influenza. It is endemic on the Labrador. It occurs among the Eskimo in pandemic form. The pandemics occur with great regularity twice a year, differing from one another in severity and to a less extent in type. Old mission diaries speak of deaths from the prevalent "Eskimo cold" and this was undoubtedly the disease we know as influenza. The pandemics arise annually when the usual mid-winter thaw occurs and in the spring of the year just before the village is cleared of the winter refuse. This mid-winter thaw usu-

^{*}We have recently been informed that a memorandum from the Department of National Revenue has advised local Inspectors of Income Tax that, for practising physicians, amounts in excess of \$100.00 under this heading, might be deducted provided that these are regarded as legitimate expenses and proof is submitted that the fees have actually been paid. Fees, such as the fee for certification of the Royal College of Physicians and Surgeons, may be included.

[†] A recent ruling by Mr. Justice Thorson in the Exchequer Court has established that persons whose income is derived from salary may claim as a deduction for income tax purposes fees paid to the licensing or governing body necessary to maintain them in good standing for purposes of their employment. This ruling applied to salaried doctors permits the deductions of the fees paid to the College of Physicians and Surgeons.

ally occurs just after the coldest winter weather; possibly the vitality of the Eskimo is lowered by the cold.

These epidemies are especially virulent about every 20 years. The last of such severe epidemies was in 1943 when in the spring 23 people of the 280 affected died and in the late summer 15 of the 250 affected succumbed.

Tuberculosis is apparently a disease which has been imported. Dr. Samuel King Hutton, M.D., Ch.B. (Vict.) noted in the year 1909 that he was not "aware of the occurrence of tuberculosis as a 'natural' disease among the primitive Eskimo tribes". Dr. Hutton was for a number of years resident at OKaK Hospital. However, tuberculosis is not a widespread cause of death among the Labrador Eskimo. It is however noticeable that with the increased use of the white man's diet there is a greater tendency to tuberculosis among the Labrador Eskimo.

Another major disease among the Eskimos is a pustular skin eruption, known to them as "kallak". This eruption at first suggests seabies, but although dirt irritates the condition I feel certain that it is not responsible for the condition. Dr. S. K. Hutton investigated cases during the years 1903 to 1908 and could find no cyidence of the presence of acarus. This cruption coincides with years when there is a lack of seal meat, which suggests to me that it is a deficiency disease.

Finally we must notice the Eskimo's tendency to homoptysis and to suppuration. The former condition occurs in apparently strong and healthy Eskimo who show no traces of tuberculosis. It is possible that in such cases homoptysis is caused by a scorbutic condition coupled with the breathing of extremely cold air while engaged in the long walks over the hills to trapping grounds.

TREATMENT

The Eskimo treat their own ills as well as obtaining medicine from the missionary. For influenza they make an infusion of Ledum Palustre which they drink, a half eupful at a time to induce a sweat and to relieve pain. It is possible that this beverage is not originally an Eskimo vemedy since. I understand, such treatment is eommon in parts of Germany and it is possible that the early German missionavies introduced this remedy. However it must be noted that this remedy is less common among the Labrador Eskimo today than it was formerly.

For hæmoptysis and hæmorrhages from the lungs the Labrador Eskimo made a stew of willow (salix) bush skins, but I can find no evidence that this treatment is used nowadays and therefore am unable to discover any dosage.

The Eskimo are great believers in the eurative properties of the skins of rodents. The skin of a freshly killed mouse is placed with the fur out over wounds and is said to effect a cure. Mouse skins are also used as a dressing for glandular swellings. The skin of the arctic hare is widely used in dressing wounds for warmth.

The root of the Sedum, after the outer skin has been removed is used internally as an anodyne. Willow buds (Salix) are eaten for scorbutic conditions. Another Eskimo remedy for cuts or wounds is the spores of the puff ball (Lycoperdon gemmatum). The spores are applied directly to the wound. The exudation of the juniper is also applied to wounds and is claimed to have great healing properties.

The Eskimo have a novel way of removing foreign bodies from the eye. First they obtain a louse, not a difficult matter, a woman's hair is tied to the louse and the louse is placed on the eyeball in order that it may crawl across the eye dragging the hair after it, and the hair removes the foreign body from the eye. This method is said to be almost infallible.

Strangely enough the Eskimo seem to have no remedy for the skin condition referred to as "kallak". Reference should be made to the Eskimo "doetors" (AKiterijut). These men by manipulation and rubbing are reputed to be able to take away pain from an affected part. One commonly hears an Eskimo complain that he has broken a certain part of his body. Although this complaint may be demonstrably false nothing can convince the Eskimo and so he calls in the Eskimo "doctor" who proceeds to mend the break by manipulation and rubbing. Some of these "doctors" are quite rough in their methods and not infrequently one meets those who have suffered eonsiderably after passing through the hands of these AKiterijut. Nevertheless the AKiterijut continue to prosper and find no lack of willing patients.

On the whole the Eskimo do not exhibit any signs of intolerance to the white man's drugs. The one exception, in my experience, is with the sulfa drugs. Given full doses of sulfathiazole, over a period of 48 hours 40% of the Eskimo patients treated show injection of the conjunctiva, while a further 30% show injection after 72 hours' treatment. Of this 70% about 5% do not react to treatment. One of my colleagues in Hebron, Labrador, had considerable success with sulfathiazole with no conjunctival injection when using half the prescribed dosage.

In the year 1942 my wife and I carried out an experiment to determine the effect of vitamins upon Eskimo and half-breed families. This experiment was earried out as a result of general concern regarding the poor health of the Eskimo. We felt that the gradual substitution of white flour and other white man's foods for native meat, fish and berries and the subsequent loss of vitamin constituents might ac-

count for the lowered resistance of the Eskimos to disease and for the prevalency of eye, skin and dental troubles. The high infant mortality and the frequent inability of mothers to feed their babies also gave cause for alarm.

Three large native families were chosen as subjects of the experiment and the family history and each subject's characteristics were noted. The vitamin product used was cerophyl, a natural food, processed for use as a supplement to the human diet. Cerophyl is made from selected leaves of young cereal grasses (wheat, oats and barley) dried and tableted.

The families chosen were the largest Eskimo and half-breed families likely to be settled on the station for the longest period in the spring when the winter hunting season was over. It was necessary to choose large families so that the diet and living conditions of the experimental and control subjects in each of the three groups should be the same. We realized that it would have been desirable to work with a larger number of subjects and over a longer period than the twelve weeks over which the experiment stretched, but we were unable to do this without hindering families from hunting and fishing. The natives followed the directions regarding dosage and we kept weekly records for the experimental and control subjects. Weight, height and chest measurements were taken and a record was kept of each individual's general health, diet and living conditions.

The experiment made it quite obvious that the addition of vitanins did improve the health of the Eskimo although vitamins could not counteract the effect of a diet which, at that time, fell so short in its energy content of that needed by people engaged in active muscular work in a very cold climate. Kallak, the Eskimo skin disease referred to above was almost entirely absent among the experimental subjects while practically every control subject had this skin condition.

We noted above that at the time of this experiment concern was felt because of the inability of mothers to feed their babies. It must also be noted that many Eskimo mothers lactate continuously over a period of many years after the birth of their first child. One woman in Nain has been lactating without cessation for over 10 years, and in spite of this she is extremely robust and strong.

The Europeanization of the Labrador has led to a deterioration in health among the Eskimo, although against this we must place the fact that the Eskimo are more cleanly than they were formerly. Nevertheless in spite of continuous teaching the Labrador Eskimo is still dirty and slow in learning cleanliness. Consanguineous marriages are of course extremely common and it is possible that the high infant mortality rate is in some degree dependent on this fact.

The concentration of the Eskimo into settlements is, I believe, an adverse influence, and the Mission and Government endeavour to persuade the Eskimo to scatter as far as is possible not only for the sake of their health but that they may have a larger area over which to hunt for food. The pure Eskimo are disappearing slowly in Labrador and it would appear that before the turn of this century Labrador will be peopled with breeds. A wise government is making valiant attempts to rehabilitate the Eskimo and to preserve this minority, a task which it is hoped will meet with deserved success.

ASSOCIATION NOTES

l'Association Médicale du Canada, Division de la Province de Québec

La réunion annuelle de l'Association Médicale du Canada, Division de la Province de Québec, aura lieu à la ville de Québec vendredi et samedi, le 18 et 19 avril.

Le Comité local des Arrangements prépare des séances scientifiques aux divers hôpitaux et à l'Université de Laval.

L'assemblée annuelle d'affaires de la Division sera convoquée à 4.30 p.m., vendredi, le 18 avril. Des programmes scront envoyés aux membres plus tard.

Les hôtels disponibles sont: le Château Frontenac; le Clarendon; l'Hôtel St. Louis: l'Hôtel St. Roch; et l'Hôtel Victoria.

Les accommodations doivent être réservées de bonne heure.

Quebec Division

The Annual Meeting of the Canadian Medical Association, Quebec Division, will be held in Quebec City on Friday and Saturday, April 18 and 19.

Scientific sessions are being arranged at the various hospitals and the University of Laval by the local Committee of Arrangements.

The annual business meeting of the Division will be convened at 4.30 p.m. on Friday, April 18. Programs will be mailed to members at a later date.

Hotels available are: the Chateau Frontenae: the Clarendon; St. Louis Hotel; St. Roch Hotel: and the Victoria Hotel.

Reservations should be made early.

The Annual Meeting, 1947

WINNIPEG, the place where the Assimboine River from the West joins the Red River from the South, has been selected by the Canadian Medical Association for its next convention, to be held from June 23 to 27, 1947.

Arrangements for the convention are practically complete. The Committee on Housing has been able to make reservations for a limited number of rooms at six of the leading hotels and, in addition to this, accommodation is available at the University of Manitoba, Fort Garry, However, it is suggested that reservations be

Sailing to Winnipeg?

For the information of members from Eastern Canada who are planning their journey to the Annual Meeting at Winnipeg, the following schedule of the Canadian Pacific Great Lakes Steamship Service is reproduced:

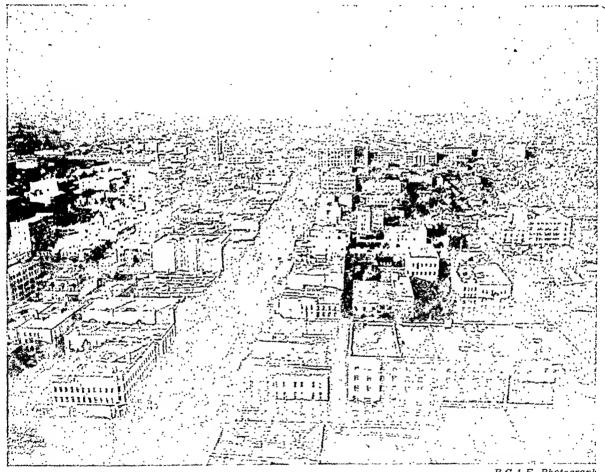
WESTBOUND

Leave Toronto 2.30 p.m. Tuesday or 2.30 p.m. Saturday.

Arrive Port MeNicoll 5.20 p.m. Tuesday or 5.20 p.m. Saturday.

Leave Port McNicoll 5.30 p.m. Tuesday or 5.30 p.m. Saturday.

Arrive Fort William 7.30 a.m. Thursday or 7.30 a.m. Monday.



Winnipeg, looking north on Main Street. The large building in the background is the Royal Alexandra Hotel, the Convention headquarters of the Canadian Medical Association.

made early to the Housing Committee. 602 Medical Arts Building, Winnipeg. Since a record attendance is expected the medical men from Manitoba are making their own arrangements for accommodation, as far as is possible, in order to leave the space available in the hotels to the men from outside the province.

The Program Committee, under the Chairmanship of Dr. F. A. L. Mathewson, has been very active. Their efforts will be reflected in the next issue of the *Journal*.

Leave Fort William 8.10 a.m. Thursday or 8.10 a.m. Monday.

Arrive Winnipeg 7.45 p.m. Thursday or 7.45 p.m. Monday.

EASTBOUND

Leave Winnipeg 8.30 p.m. Friday or 8.30 p.m. Monday.

Arrive Fort William 7.10 a.m. Saturday or 7.10 a.m. Tuesday.

Leave Fort William 11.00 a.m. Saturday or 4.00 p.m. Tuesday.

Arrive Port McNicoll 6.30 a.m. Monday or 8.30 a.m. Thursday.

Leave Port McNicoll 8.45 a.m. Monday or 8.45 a.m. Thursday.

Arrive Toronto 11.30 a.m. Monday or 11.30 a.m. Thursday.

Members from points in Ontario, Quebec or the Maritime Provinces wishing to travel via the Great Lakes should arrive in Toronto either Tuesday or Saturday in time to leave by the C.P.R. Steamship Special at 2.30 p.m. for Port McNicoll.

Canada Steamship Lines, S.S. Noronic, also offers a weekly service on the following schedule:

WESTBOUND

Leave Windsor 8.30 a.m. Saturday.
Leave Sarnia 6.00 p.m. Saturday.
Arrive Port Arthur 6.30 a.m. Monday.
C.P.R. or C.N.R. train connections for Winnipeg
as above.

EASTBOUND.

Leave Port Arthur 12.00 noon Wednesday. Arrive Sarnia 8.30 a.m. Friday.

We are informed that very heavy traffic via the Lakes is expected during June and July and members who propose to break the rail journey to Winnipeg by a steamship trip are urged to make reservations with their Canadian Pacific agent without delay.

Identification Certificates have been obtained from the Canadian Passenger Association which entitle members and their families to purchase rail and/or steamship transportation at a special rate of single fare plus one-third. Requests for Identification Certificates should be addressed to the General Secretary, C.M.A., 135 St. Clair Avc. W., Toronto 5.

THE ANNUAL MEETING ROUND TABLE CONFERENCES

For the first hour and a half on each of the three mornings of Wednesday, Thursday and Friday, June 25, 26 and 27, Round Table Conferences will be held at the annual meeting in Winnipeg.

The subjects to be discussed with the names and addresses of the Chairmen are presented hereunder. Members are cordially invited to study this list and submit, in advance in writing, questions or problems or suggestions which they would like to have discussed in any round table.

Please communicate directly with the Chairman of the Conference concerned and do it soon in order that advantage may be taken of your communication in the preparation of the Conference.

ROUND TABLE CONFERENCES

Anæsthesia

Anasthesia for the Occasional Anasthetist.

Chairman: Dr. D. C. Aikenhead, Medical Arts Building, Winnipeg.

Anæsthesia for Chest Surgery.

Chairman: Dr. A. C. Rumball, Deer Lodge Hospital, Winnipeg.

Dermatology

Schorrhæa.

Chairman: Dr. Norman Wrong, Medical Arts Building, Toronto, Ont.

Furunculosis.

Chairman: Dr. A. R. Birt, Medical Arts Building, Winnipeg.

Ringworm of the Scalp.

Chairman, Dr. A. M. Davidson, Medical Arts Building. Winnipeg.

Medicine and Surgery (Joint) -,

Hypertension (surgical and psychosomatic view points).

Joint Chairmen: Dr. J. D. Adamson, Winnipeg
General Hospital, Winnipeg, and

Dr. A. C. Abbott, 409 Power Building, Winnipeg.

Medicine, Obstetrics and Gynæcology (Joint) Endocrine Problems of Puberty, Reproduction and

Menopausc.
Chairman: Dr. H. B. VanWyck, Medical Arts
Building, Toronto 5.

Medicine

The Management of Peptic Ulcer.

Chairman: Dr. Wendell Macleod, St. Mary's and Vaughan Streets, Winnipeg, Man.

Obstetrics and Gynæcology

Cwsarean Section—the indications and contraindications. Chairman: Dr. W. P. Tew, 4 Hayman Court, London, Ont.

Obstetrics and Pædiatrics (Joint)

The Rh Factor in Obstetrics and Padiatrics.

Chairman: Dr. Bruce Chown, The Children's Hospital of Winnipeg, Winnipeg.

Orhthalmology

Ocular Injuries.

Chairman: Dr. N. L. Elvin, Medical Arts Building, Winnipeg.

Otolaryngology

Chronic Otitis Media.

Chairman: Dr. Robert Black, Medical Arts Building, Winn ipeg.

Otola ryngology and Pædiatrics (Joint)

The Management of Bulbar Poliomyclitis.

Chairm'an: Dr. Harold Medovy, 401 Boyd Building, Winnipeg, Man.

Psychiatry

Treatment in D.T.A. Hospitals—Rehabilitation of Psychiatric Cases, including experience with subshock, insulin, indications, mode of action, results, etc. Chairman: Dr. W. M. Musgrove, Deer Lodge Hos-

pital, Winnipeg.

Electro Encephalography in Psychiatry.

Chairman: Dr. G. L. Adamson, St. Mary's and Vaughan Streets, Winnipeg. Child Psychiatry.

Chairman: Dr. Alex. Pincock, Psychopathie Hospital, Winnipeg.

Radiology

Roentgen Therapy in the Treatment of Arthritis (therapy).

Chairman: Dr. Ethlyn Trapp, Mcdical-Dental Building, Vancouver.

Cardio-vascular Eventgenology (diagnostic).

Chairman: Dr. H. M. Edmison, 103 Medical Arts Building, Winnipeg.

Surgery

Vascular Disorders of the Lower Extremities.

Chairman: Dr. C. E. Corrigan, 307 Waterloo Street, Winnipeg.

Management of Intestinal Obstruction.

Chairman: Dr. M. R. MacCharles, 10 Medical Arts Building, Winnipeg.

Urology

Anuria.

Chairman: Dr. H. D. Morse, St. Mary's and Vaughan Streets, Winnipeg.

The Rôle of Antibiotics and Chemotherapy in Urology. Chairman: Dr. J. C. McClelland, Mcdical Arts Building, Toronto.

Please address your questions to the Chairman.

MEDICAL SOCIETIES

Canadian Association of Radiologists, January 3 to 5

The Mid-winter Session of the Canadian Association of Radiologists took place in Quebec on January 3 to 5 of this year. The total registration was 90 and the sessions at the Laval, St. Sacrement, L'Enfant de Jesns and Hotel Dieu Hospitals were all well attended. The scientific sessions at these hospitals consisted of a series of 10-minute papers with a discussion period of five to ten minutes, and most of these papers were given by the younger members of the Association and by those radiologists who had served with the armed forces.

Thirty papers constituted the scientific program and these were delivered with remarkable efficiency, the content of the papers was excellent, the standard of presentation, high, and in spite of the large number of papers, each session was concluded on time. Presiding over the scientific sessions were: Dr. W. A. Jones, Kingston; Dr. Carleton B. Peirce, Montreal; and Dr. W. Lloyd Ritchie, Montreal. The luncheons and teas furnished by the Sisters at each hospital were very much appreciated. A bus service was arranged to convey those attending the sessions to and from the various hospitals which are a considerable distance apart.

The local Committee under the chairmanship of Dr. Jules Gosselin, assisted by Drs. Mathieu Samson, Henri Lapointe, and other radiologists in Quebec, were responsible for the arrangements, and to them is the satisfaction of having arranged for and conducted the most successful meeting that the Canadian Association of Radiologists has held. The next meeting of the Association will be held at Winnipeg at the time of the Canadian Medical Association Annual Meeting, June 23 to 28.

The Physiological Society of the University of Toronto, November 4, 1946

Dr. J. Talesnik, who is at present pursuing investiga-tions in the Department of Banting and Best Medical Research as a fellow of the Rockefeller Foundation, while on leave of absence from the University of Chile, spoke on November 4 before the Society on the subject "The influence of the thyroid hormone on certain neuro-

effector by their particularly the heart'?.*

In a promounced modifications occur in the sensitivities of cardiac and skeletal muscle effector systems to neuro-transmitter substances. The experiments were carried out on isolated mammalian hearts (from the cat, rabbit, dog and guinca pig) and on rat skeletal muscle in situ. The isolated hearts of normal animals show great variations in their responses to acetylcholine (AC) injected into the coronary system. This is due to the fact that there are in the heart two types of effectors reacting differently to AC and having variable sensitivities to it. The cardiac muscle fibres are depressed by AC. Cholinergic effectors similar to sympathetic ganglion formations are also present and these respond to AC by liberating an adrenalin-like substance which has a stimulatory effect on the cardiac muscle fibres. These findings, corroborated recently by McDowall and by Haney and Lindgren, may explain the stimulant effect of high doses of AC on the heart.

The work of Burn and his co-workers shows that,

on nerve tissue, AC and adrenaline do not act as antagonists, but rather as synergists. Of itself, the adrenaline does not elicit appreciable responses in nerve but modifies the response to AC. The effect of AC is increased by low concentrations, but depressed by high concentrations, of adrenaline. This interrelation of AC-adrenaline is most evident in the ganglia of the sympathetic system. In the perfusion of the superior cervical ganglia the transmission of cholinergic nerve excitation is facilitated by adding adrenaline in low concentration to the saline perfusion fluid. On the other hand, if higher concentrations of adrenaline are added, the ganglionic transmission is either partially or wholly

depressed.

In the sympathetic ganglion itself there are tissues (composed possibly of chromaffin cells) which liberate adrenaline, since this substance appears in the perfusate following the stimulation of the preganglionic fibres or the intra-arterial injection of AC. It is supposed that adrenaline is liberated not only in the superior cervical ganglia, but also in other synapses in which AC is a transmitter substance. It is therefore concluded that the adrenaline which is liberated in the heart may modify the action of the AC upon the different effectors.

If thyroid hormone is administered to an animal in intensive dosage over a long period, the cardiac muscle fibres are sensitized to adrenaline. At the same time the myocardium is markedly desensitized to the depressor action of the AC. It is reasonable to think that this is the cause of the weak cardio-depressor response to vagal stimulation which is observed in hyperthyroid animals. An opposite effect on the intracardiac sympathetic structures occurs, since they become sensitized to AC as manifested by increased liberation of adrenalinelike substance following the injection of relatively small quantities of AC. The combination of all these factors would contribute to produce the clinical picture of "hyperthyroid heart".

In thyroid insufficiency the cardiac changes are the antithesis of those found in the hyperthyroid heart. In the hypothyroid animals the myocardium is less sensitive to stimulation by adrenaline and the depression by AC is intensified, as is also the depression produced by stimulation of the vagus. The intracardiac sympathetic structures are relatively insensitive to the action of AC, since there is decreased liberation of adrenaline-like

^{*} An article on this subject by F. Hoffmann, E. J. Hoffmann and J. Talesnik is to appear in the American Journal of Physiology.

substance in the heart itself. It would seem that the sum of these factors is responsible for the bradycardia.

Thus adequate sensitivities of the different effectors to AC and to adrenaline seem to be of fundamental importance to the normal functioning of the heart and the hormone of the thyroid gland plays an essential rôle

in the regulations of these peripheral mechanisms.

Other structures in addition to the heart appear to be influenced by the thyroid hormone. When rats are in experimentally induced hyper- and hypothyroid states the skeletal muscles show characteristic differences in their responses to indirect stimulation. These observations could be explained in part by the changes in the sensitivities of the muscles to AC.

Physiological Society of the University of Toronto, November 25, 1946

Dr. B. C. P. Jansen spoke before the Society on "The nutritive value of butter, with particular reference to vaccenic acid", on November 25. Dr. Jansen is Pro-fessor of Physiological Chemistry in the University of Amsterdam and Director of the Netherlands Institute of Nutrition, and is temporarily exchanging duties with Dr. Bruno Mendel, who is at preent in Holland.

In collaboration with Dr. Boer and Dr. Kentie, it was found that the addition of summer butter to the diet produced a greater stimulation of growth in young rats than do vegetable fats such as olive oil; while winter butter gives the same growth response as the vegetable fats. This effect was traced to the fatty acid fraction of the summer butter. The growth-promoting activity is destroyed in hydrogenation but is present in the so-called "saturated" fatty acid fraction obtained by precipitation with lead acetate, according to Twitchell. In 1928 Dr. Bertram of Delft, Holland, showed that the fraction contained a small amount of an unsaturated fatty acid called vaccenic acid, an isomer of oleic acid, to which the formula 111, 12 octadecenoic acid is assigned. On testing this vaccenic acid it proved to be responsible for the growth-promoting activity of summer butter.

Vaccenic acid, prepared in an entirely different way from Chinese wood oil by partial hydrogenation, was found to have the same growth-stimulating activity as

vaccenie acid.

Physiological Society of the University of Toronto, December 9, 1946.

Dr. T. H. Jukes of the Lederle Laboratories Division of the American Cyanamid Company, Pearl River, New York, on December 9, addressed the Society on the subject "Pteroylglutamic acid ('folic acid', 'vitamin Be') and its nutritional significance'.

Dr. Jukes described the varied investigations of many weekers which collaborated in the irolation, abarratoriza-

workers which culminated in the isolation, characterization and synthesis of pteroylglutamic acid by a group of scientists in the laboratories of the American Cyanamid Company. Pteroylglutamic acid is a watersoluble, crystalline compound which can be split into glutamic acid, para-amino benzoic acid and a pteridine The newly synthesized vitamin may be renucleus. The newly synthesized vitamin may be regarded as the most physiologically active member of a family of vitamins, comprising folic acid, pteroyltriglutamic acid, vitamin M, vitamin Bc, liver L. Casei factor, Norit eluate factor and others. There are certain differences in chemical constitution and in physiological properties between the members of the family. Now that the constitution of the central member has been established, the chemical nomenclature, where it can be applied, is to be preferred.

It has been shown that pteroylcutamic acid.

applied, is to be preferred.

It has been shown that pteroylglutamic acid is an important factor in animal nutrition and it may be expected that it will also be found necessary for the nutrition of normal human beings. The anti-pernicious appraise factor or homestinic principle of liver extracts. anæmia factor or hæmatinic principle of liver extracts

is physiologically related to pteroylglutamic acid, although the two are not identical.

When used in the treatment of pernicious anemia pteroylglutamic acid administered per os produces marked improvement in the blood picture and in the clinical condition of the parents. There are, however, certain differences in the responses, and the best results at present appear to be obtained by treatment with both the pteroylglutamic acid and liver extract.

Pteroylglutamic acid therapy appears to be specific in the treatment of the anemias of sprue and the macrocytic anemias of infancy, pregnancy and pellagra.

La société médicale des hôpitaux universitaires de Québec

Société médicale des hôpitaux universitaires de Québec le vendredi, 6 décembre, 1946.

L'ACIDITÉ GASTRIQUE DANS L'ULCÈRE DUODÉNAL.—S. LeBlond et Jean Rousseau.

L'ulcère duodénal isolé de l'ulcère d'estomac, par Bucquoy en 1887, est devenu une maladie fréquente surtout depuis la guerre. Tous les auteurs sont d'accord pour affirmer qu'il existe de l'hyperchlo-hydrie. 24 cas ont été étudiés plus spécialement à l'Hôpital des Anciens Combattants. L'hyperchlorhydrie s'est révélée dans 22 cas. L'hyperchief totale dans 10 cas seulement. Les éléments diagnostiques consistent surtout dans l'histoire du malade et les constatations radiologiques. chimisme gastrique n'apporte aueun élément nouveau tant diagnostic que thérapeutique.

Devrait-il être mis de côté?

Anesthésie intra-rachidienne par la methode de DOSES SUCCESSIVES ET FRACTIONNÉES. - Bernard Paradis.

1ère partie. Nous avons exposé la technique que nous avons employée. Elle se rapproche de celle de son fondateur Lemmon, mais elle en diffère par la solution employée, qui est une solution à 0.3% de pontocaine hypothere (parfois hypothere, selon la technique de Lund et Compren) et Cameron) pour la lère injection, et de plus en plus diluée pour les injections subséquentes. Jamais l'on ne donne d'analeptique de routine, mais de l'oxygène pour toutes les interventions hautes où le sympathique cardiaque est atteint, et pendant toute l'intervention; les statistiques des cas présentés sont très bonnes.

2ème partie. Discussion physiologique des résultats obtenus: Explication physiologique de l'absence de complications post-anesthésiques importantes, genre paraplégie, sequelle nerveuse, etc., et théorie émise de la réaction méningée ou de l'anoxémie dans la cause-des céphalés.

LA MYOCARDITE RHUMATISMALE ET SON ASPECT ÉLECTRO-CARDIOGRAPHIQUE.—Jean Fortier.

La myocardite rhumatismale survient dans 95% des cas de rhumatisme articulaire aigu, que celui-ci évolue à l'état torpide ou franchement. Les signes de cette atteinte myocardique peuvent être cependant très discrets et souvent, sans l'aide de l'électrocardiographie, le diagnostic en sera impossible. Une brève revue des signes cliniques et radiologiques est faite. Les difmodifications electrocardiographiques sont férentes Pour terminer, l'auteur étudiées plus longuement. rapporte quatre observations de myocardite rhumatismale ayant évolué différemment au point de vue clinique et surtout électrocardiographique. Les modifications du tracé représentent sensiblement toutes celles que l'on Certaines conclusions sont rencontrera couramment. tirées.

CONSIDERATIONS SUR DEUX CAS D'ÉPIPLOÎTE. - J. L. Petitelere et Cajetan Gauthier.

Nous avons traité deux cas d'épiploïte, dont un cas d'épiploïte aigue à staphylocoque et un cas d'épiploïte chronique de type plastique. Tous deux se sont présentés sous la forme d'une large masse tumorale qui a atteint des proportions considérables en l'espace de quelques heures. Le traitement a consisté dans l'excision de ces larges tumeurs; toutes deux étaient intimement accolées au péritoiuc, au eolon transverse et à l'intession grêle. Le premier cas était une d'epiploîte aigue purulente qui est apparue sans eause apparente, chez un patient qui a présenté plusieurs manifestations staphylococciques antérieures; l'hypothèse d'un diverticule comme agent causal est plausible parce que nous avons fermé un petit orifiec sur une des anses du grêle. Le malade a bien guéri de cette pathologie

sans séquelle apparente. Dans le deuxième eas, l'épiploïte est apparue après nne appendicectomie et diverticulectomie. Nous avons enlevé cette masse et il a falln intervenir à deux reprises chez ce patient pour adhérences post-opératoires causant de l'occlusion intestinale au niveau de l'intestin grêle. Ce malade est amélioré mais il présente un syndrome de sub-occlusion intermittente. Peut-être faudra-t-il un jour reconrir à une réscetion de l'intestin grêle là où siègent tonjours les lésions amenant l'occlusion.

CANADIAN MEDICAL WAR SERVICES

MEDICAL OFFICERS STRUCK OFF STRENGTH OF THE R.C.A.M.C.—ACTIVE FORCE DECEMBER 1946

(Previous sections in January, March, April, May, June July, September, October November and December, 1945 and January, March, May, June, July, August September, October, November and December, 1946 and January, Febuary, 1947.)

SECTION LXXXVIII

			•				
Name	Address	Date struck off	strength	Name	Address	Date struck off	strength
Adilman, 1	B., 406 Ave. "	D'' S., Saskatoon	2-11-46	Leblanc, L.	G., 37 See	ond Ave. E., North Bay,	
11 . 77 7	`**** 1 ww	1 A 37 A	4.7.46	Ont.	•	,	1.11.46
Applevard	H. E. 20 O	chard Hill. Hamilton.		Livingstone	. A. G., Wa	skatenau, Alta.	18-10-46
Ont.	,, •	rchard Hill, Hamilton,	28-10-46	Lloyd, F. 1	. Cobourg	, Ont.	8-6-46
Attendu, C	L. A., 72-2nd A	ve., Ville de St. Pierre,		Lochead, J	. R., 5532	Trans Island Ave.,	
Que.	,	,,	4-11-46	Montre		·	1.10.46
	o. L. E., 9904-	113 St., Edmonton	26-10-46	Loveseth, L	. J., 10717-	83rd Ave., Edmonton	29-10-46
		lee Hosp., Victoria	9-11-46			ddle Musquodoboit, N.S.	22-2-46
		theliffe Blvd., Toronto	2-12-46			real General Hospital	21-8-46
Bulmer, H	R. 59 King	Georges Rd., Toronto	2-11-46			Andrews, N.B.	22-11-46
		Brunswick Ave.,		Mekean, H	. R., 102 Br	unswick St., Truro, N.S.	24-10-46
Halif		22. 4	4-10-46	MacKewan	. W. R., 654	4 Balsam St., Vancouver	9-10-46
		lichmond St., Windsor,		MacKinnon	, H. N., 1	621-17A St. E., Calgary	7-11-46
Ont.	, 2		18-12-45			Bay St. W., Hamilton,	
	., 3498 City H	all Ave., Montreal	31-5-46	Ont.	,	•	$26 - 9 \cdot 46$
Christians		22700, 220-22	6-11-46	Marfleet, T	L., Marw	ayne, Alta.	3-12-46
		ley Park Manor Apt.,		Mcrcier. R.	, 79 D'Aigt	ullon St., Quebec	22-10-46
Vanco			29-10-46	Muir, D. M	i., Shelbour	ne, N.S.	1.10.46
	11631-95A St	Edmonton	1-11-46	Mustille, A	., 2298 Har	vard Ave., N.D.G.,	
Delahave.	A. L., Royal V	ictoria Hosp., Montreal	13-11-46	Montre	al		6-9-46
		rth St., Medicine Hat,		O'Keefe, J	. M., 518 A	gnes St., Winnipeg	8-11-46
Alta.	,	,	9-11-46	Osborne, D	. F., 475 Do	ominion St., Winnipeg	9-11-46
	., Scarboro P.	O., Ont.	16-11-46	Piuze, Y. I	E., 4297 We	stern, Westmount, Que.	1-11-46
	I., 535-15th Av		22-10-46	Plamondon	, C. A. G., 7	78 Monk Ave., Quebec	19-10-46
Edgar, M.	L., Royal Jul	pilee Hospital, Victoria	29-10-46	Porter, D.	F. W., 158	Germain St., Saint John,	00 0 40
Edwards.	W. S., 281 El	gin St., Ottawa	28-9-45	N.B.			28-8-46
Fraser, W	. A., Victoria		22-7-46	Rawson, N.	R., 408 Ox	ford St., Winnipeg	5-11-46
Fry, W. F	I., 12 Peel St.,	Brantford, Ont.	13-11-46	Rice, D. A.	, 1280-4th A	lve. S., Lethbridge, Alta.	20-10-40
Gaulton, (3. C. B., 17 S	t. Paul St., Saint John,		Rotenberg,	H., 334 Ku	ton Rd., Toronto	13-11-46
N.B.	,	ŕ	1-11-46	Samnels, A	. J., 10224-	121st St., Edmonton	29-10-46
Gervais, F	k., St. Paul, M	ontmagny Co., Que.	28-10-46	Sedgwick,	W. S., 14 W	illowbank Blvd., Toronto	10-11-40
Goodman,	J. M., Limeri	ck, Sask.	6-11-46	Sestrap, L.	, Weyburn,	Sask.	28-11-46 28-11-46
Gorman, 1	F. J. Á., 246 (Campbell St., Winnipeg	29-10-46	Sherban, A	J., Haffor	ru, Sask.	
Goulet, F.	, St. Honore S	ienley, Beauce Co., Que.	25-2-40	Simpson, h	6. E., 1751	Haro St., Vancouver	8-11-46
Green, K.	, Box 583, Pri	ace Rupert, B.C.	8-10-46	Skwarok, E	7. W., 9948-	88th Ave., Edmonton	13-11-46 26-10-46
Grisdale,	L. C., 156 Carl	ing Ave., Ottawa	23-10-46	Smyth, M.	F., 2377 D	andas St. W., Toronto	17-9-46
Hall, H.	K., 4738 W. 6	th Ave., Vancouver	16-2-46	Squires, r.	J., (13 FF	eet Ave., Winnipeg	
Hayward,	R., 1087 Spr	uce St., Winnipeg	3-9-46			531 Davie St., Vancouver	25-11-46
Herman,	B. G., 61 Lyn	dhurst Ave., Toronto	1-11-46		f., St. Camil		22-11-46
	J., Southside	Rd. W., St. John's,	00 10 46	Woman C	, a, aaaa-	108th St., Edmonton almerston Blvd., Toronto	
`Nfld.			29-10-46	Warran, S.	, A., 555 E.	in St. E., Hamilton, Ont.	20-7-46
Hugill, J.	T., 11154-83rd	l Ave., Edmonton	26-10-46	Wightman	T T P	78 Gosvener St., Toronto	4-10-45
Hutcheon	, D. E., 117 E	relyn Cres., Toronto	13-11-46	Willicaroft	B 1 88	3 Seventh Ave., Owen	1 10 10
Kerr, D. 1	L., 506 Prince .	Albert Ave., Westmount	,	Sound		b Beventh 22ven Oven	27-11-45
Qne.		•	30-11-46	Wilson G	12 139 W	21st St., North Vancouver	
	S. J., 18 Mel	Dougall Ave., Waterloo		Wilson W	71 G 91	2 Victoria St., Kamloops	
Ont.	~- 0.,		7-11-46	B.C.	U., w.x.	2 Tiotoria Den akamioops	24-11-45
	., 47 Fraser St	Levis One.	16-10-46		345 Enelia	d Ave., Toronto	15-11-46
manue, m.	,, 2. 2.26501 101	.,,		- outing Di	,		~

CORRESPONDENCE

Health Insurance in Austria

To the Editor:

The following translation of a newspaper clipping from Die Presse, Vienna, December 25, 1946, is of

interest in medical economics.

"Demands of the physicians of Styria.—In full agreement with the Austrian Medical Association the physician of Styria reject decidedly the proposal made by Health Insurance officials to employ a limited number of practitioners on salary, and to restrict specialists' services to out-door clinics. They demand free choice of doctors and fee for service payment. Furthermore the College of Physicians and Surgeons of Styria wants Health Insurance limited to those below a certain income ceiling so that the benefits obtainable by those of very limited means are not likewise extended to patients in high income brackets. This demand is explained by the fact that the eapitation fee which the Styrian practitioners are paid under the present Health Insurance scheme is exceedingly small. It means that a practitioner receives a trifle more than four Austrian Schilling* for attending a patient for a period of three months. Therefore the profession in Styria demands at least a share of 25% of the Health Insurance contributions."

It should be explained that health insurauce was instituted in Austria several years before World War I, as a matter of fact Austria was one of the first European countries to adopt this "Made in Germany" idea. One cannot therefore rightly assert that health insurance is in Austria still in an experimental or transitional state. Styria is an Austrian province with a population of about 1,000,000.

Provost, Alta.

A. F. PERL, M.D.

* At present rate of exchange four Austrian Schilling are equivalent to 40c (forty cents) in our currency.

SPECIAL CORRESPONDENCE

The London Letter

(From our own correspondent)

THE COLLEGES INTERVENE

The outlook for the forthcoming negotiations concerning the National Health Service has been considerably modified for the better by correspondence that has passed between the Presidents of the three Royal Colleges (surgeons, physicians and obstetricians) and the Minister of Health.

The initiative was taken by the Presidents who wrote to the Minister asking for clarification on the three outstanding features of the Service that were eausing apprehension to the profession: the method of remuneration; the absence of any right of appeal to the eourts against a decision of the Minister expelling a praetitioner from the Service; and the apparent lack of liberty of movement of praetitioners from one area of the country to another. In his reply the Minister has expressed his willingness to "negotiate freely" within the terms of the Act. He has also pointed out that "the resumption of discussions now would not prejudice" the final decision that every doctor will need to take as to whether he wishes to enter the new service.

This conciliatory attitude has been reciprocated by the British Medical Association, and at a special representative meeting which is just about to be held as this letter is written, a resolution is to be presented to the effect that the Association will enter into negotiations with the Minister on condition that the discussions will be comprehensive and that the possibility is not excluded that they may lead to further legislation. This resolution has already been approved by the doctors of

Manchester and Swansea, and there is every reason to believe that it will be adopted by the representative meeting.

Doubts have been expressed as to the wisdom of considering further legislation on this matter. As certain sections of the Labour Party have already pointed out, "if a bill can be altered in one direction it can be altered in another". In other words, if the matter comes before Parliament again, the Minister might not be so successful is restraining those members of his party who strongly urge a full-time medical service under direct government control.

MEDICAL OFFICERS OF HEALTH

The public health doctor, or medical officer of health, has become such a well established part of our medical services that it is difficult to realize that it is only a hundred years since the first one was appointed in this country. This was Dr. W. II. Duncan who was appointed medical officer of health in Liverpool. A quarter of a century was to pass before such an appointment was made obligatory upon every sanitary authority in the country. The progress in public health that has been made since those days constitutes one of the most striking features in the history of the 19th century. Indeed, their work is taken so much for granted that there is a tendency to overlook the tremendous debt this island country of ours owes to these estimable members of the profession. The mere fact that even a minor epidemic of enteric fever provokes such a popular outery is the most effective compliment that could be paid to the efficiency of their work.

Their task has seldom been easy. Their fellow-practitioners have often tended to belittle them as mere "office-wallahs", whilst local authorities have all too often resented suggestions that more of the ratepayers' money should be spent on schemes for improving the health of the community. Today, however, all that is changed, and, thanks largely to the valiant efforts of the pioneers in the service, the "M.O.H." is now recognized as a key-man in the struggle against disease. In the forthcoming National Health Service his status

will be that of a specialist.

NEW ABSTRACTING JOURNALS

With commendable punctuality the British Medical Association has issued the first number of two new journals—Abstracts of World Medicine and Abstracts of World Surgery, Obstetrics and Gynxcology. These will fill a long-felt want in medical literature, in helping the harassed clinician to keep in touch with steadily increasing numbers of medical journals. The very fact that it has been necessary to publish two separate journals for the purpose is some indication of the magnitude of the task. To have produced two such journals under present day conditions is a feat of which the editors have every reason to be proud. Both journals are to be published mouthly.

-EMERGENCY BED SERVICE

One of the major problems for the general practitioner in London is to find a bed in hospital for a ease of emergency. All too often this involves telephoning several hospitals before one is found that has a vacant bed. In 1938 the King Edward's Hospital Fund for London instituted an emergency bed service. A twenty-four hours' service was provided, so that all a doctor had to do to get his patient into hospital as an emergency was to telephone the offices of the service, and within a matter of minutes he would be informed where his patient could be admitted. During the war the service played a valuable rôle in the organization of the emergency hospital service for the London area. Since the end of the war it has been reorganized, and it is now announced that once again it is providing a twenty-four hours' service for the doctors of London. That it fulfilled a useful rôle is shown by the fact that since its inception it has dealt with a total of over 40,000 calls.

AMALGAMATION OF EYE HOSPITALS

A noteworthy advance in postgraduate facilities has just been annonneed. As from the beginning of the year three famous eye hospitals—the Royal London Ophthalmie Hospital (Moorfields Eye Hospital), the Royal Westminster Ophthalmie Hospital and the Central London Ophthalmie Hospital—have become one corporate body under the title of Moorfields Westminister and Central Eye Hospital. Under the new scheme 341 beds will be available for in patients and there will be facilities for dealing with 90,000 new out-patients each year. As these elinical facilities will be available to the Ophthalmie Institute, one of the federated institutes of the University of London, it is clear that this new development will provide outstanding opportunities for research as well as for postgraduate instruction. London, February, 1947.

WILLIAM A. R. THOMSON

The Holland Letter

(From our own correspondent in Holland)

NEW FEES FOR THE DUTCH DOCTORS

In Holland two-thirds of the population are members of an assurance institute or foundation, that procures them all necessary medical help and aid. Only persons earning less than 3,750 guilders a year (about 1,250 dollars) can be affiliated with such a foundation. They may choose the doctor they want, they can take another physician twice a year, if they wish medical assistance by another doctor.

They are entitled to all kinds of medical help; they can visit the doctor at his home, but the doctor has to come if the patients want him to do it, even if it is not necessary at all. Medical help by specialists, if judged necessary by the house physician is provided too.

judged necessary by the house-physician is provided too. During the last years the limit of revenues for those who wanted to affiliate to an assurance foundation for medical help was brought from fl. 2,200 to fl. 3,000 and recently even to fl. 3,750. Consequently the number of the people, not belonging to a foundation decreased. These persons used to pay the doctor fl. 2.50 (1 dollar) for every treatment or visit. The income of the doctor was not raised during and after the war, on the contrary, the number of people paying their visits directly to their physician was reduced.

For every person, affiliated to a foundation for medical mutual assistance and aid, a certain amount was paid to the doctor, chosen by the patient. Up to 2,500 persons in a town or village could choose one doctor for their permanent medical aid. Four guilders (1.50 dollar) a year was paid to the doctor for the patients, who had inscribed for his regular medical aid.

Now the doctors have broken their existing contracts with the foundations, saying that the increase of the cost of living, accompanied with the decrease in their income by the fact that there were fewer persons than formerly paying for every treatment, made it necessary that existing contracts be renewed and brought on a level in accordance with the raising of the cost of living, also for the doctors.

also for the doctors.

The 6,300 Dutch doctors, who had contracts with the foundations, are now waiting the results of the negotiations by the representatives of the government, the doctors and the assurance foundat

the government have declared that a by the foundations to the doctors view of the increased cost of living. But the Dutch doctors, always faithful servants of the state and their fellow-citizens, hope that now their demands will be recognized.

MALNUTRITION-CEDEMA IN INDONESIA

The excretion of creatinine in the urine of healthy Indonesians was compared with the excretion in patients with malnutrition-ædema. After the Japanese occupation many thousands of Indonesians were found to be suffering from malnutritiou-ædema. The total creatinine

exerction and the creatinine coefficients were found to be very low in the edema patients.

LIGHT CASES OF ERYTHROBLASTOSIS FETALIS

Dr. S. I. de Vries, internist at the university elinics for obstetrics and gynæcology of Prof. M. A. van Bouwdijk Bastiaanse at Amsterdam, made a research on the Rh factor on children born in the university elinies. A complete morphological blood test was done on children, whose mother was Rh positive, to get an idea about the number of reticulocytes normally present. The same examination was performed on apparently normal Rh positive neonati, whose mother was Rh negative. In a very high percentage of the cases the blood picture showed the characteristics of a hæmolytic anæmia, whereas the number of reticulocytes was significantly increased. Besides it was possible to demonstrate the presence of Rhesus antibodies in the maternal blood.

These mild eases of erythroblastosis fetalis confirm the opinion that the etiology of this disease is closely connected with a Rhesus antagonism.

THE CAUSES OF HEMOPTYSIS

In a survey of the underlying diseases eausing hamoptysis during the years 1941 to 1946, Dr. J. C. Gerrits at Amsterdam, remarks that besides pulmonary tubereulosis chronic tracheobronchitis was an important etiological factor. The frequent occurrence of a chronic tracheobronchitis with hamoptysis during the winter of 1945-46 was caused by influenza infection.

New Editor-in-chief of the "Dutch Medical Journal"

Prof. dr. G. van Rijnberk, editor of the Dutch Medical Journal during 33 years was rewarded the gold medal of the Dutch Medical Journal for all his work on behalf of the Dutch Medical Press and the Dutch physicians. Dr. D. Klinkert will replace Prof. van Rijnberk as editor of the Dutch Medical Journal.

ELECTRON MICROSCOPE

In the laboratories for technical physics in the Technical High School at Delft a new electron microscope was constructed by ir. J. B. le Poole. Simplifications in the models known up till now will reduce the cost of the instrument.

CANADIAN AMBASSADOR REPRESENTS PROF. BEST OF TORONTO

The title of doctor honoris causa was granted to Prof. Best of the University of Toronto on the occasion of the dies natalis (birthday) of the University of Amsterdam on January 8, 1947.

Prof. Best, who could not be present at the ceremony was represented by the Canadian Ambassador to the Netherlands, the Right Hon. Mr. Dupuys.

Amsterdam, J. Z. Baruch January 21, 1947.

Revolutions are more rapidly effected in the arts than in the minds. A new process, a new discovery in practical science progresses more in a decade than does a new thought in ten.—Osler.

ABSTRACTS FROM CURRENT LITERATURE

Medicine

Problems Arising in the Treatment of Syphilis with Penicillin. Hill, W. R.: New England J. Med., 235: 919, 1946.

The observations recorded were from a series of 125 patients with various types of syphilis treated at the Massachusetts General Hospital. The patients were hospitalized: treatment was for 50 days, and a total dosage of 1,200,000 to 2,400,000 units was given by intramuscular injection, in doses of 20,000 to 40,000 units every three hours. Arsenicals and bismuth were not used but treatment in most patients having interstitial kerotitis or neuroscubilis and approximately the statement in the statement i stitial keratitis or neurosyphilis was supplemented by fever therapy. Penicillin resistance was encountered in patients with persistently positive serological reactions adequately treated with arsenicals and bismuth. Two patients of 3 with interstitial keratitis treated with penicillin alone were improved; 2 others in which malarial or typhoid fever therapy was used as adjunct were not improved. Three patients with advanced optic atrophy and 1 with 8th pares deaffects. atrophy and I with 8th nerve deafness were not improved. One case with extensive destruction from gummatons syphilis of the face was not improved by the maximum dosage of penicillin but was cleared up with malarial fever therapy. In early cutaneous syphilis the author did not encounter penicillin resistance. Reference is made to Moore's observation that when penicillin alone is administered in early syphilis the rate of relapse is in direct relation to the total dose given intramuscularly in a period of 7½ days; also the report by the Committee on Medical Research of the U.S.P.H.S. that the lowest cumulative failure rate (15% at the end of 11 months' follow up) occurred after a total dosage of 2,400,000 units, whereas after 60,000 units the rate was 62%. While serological and clinical relapse occurred in the author's series, amounting to about 7%, between the 3rd and 9th month, the danger period extended to the end of the second year after treatment.

One instance of what Schoch and Alexander have called "ping pong syphilis" was observed. A male patient with positive dark-field was treated, and on month later his wife developed, while sero-negative, a vulvar lesion. She received penicillin treatment and 3 weeks later her husband developed another primary lesion in a different site from his former lesion. The husband had evidently been cured after infecting his wife, who in turn reinfected him. In relapse and reinfection retreatment requires at least double the previ-

ous dose, reinforced by arsenic and bismuth.

Herxheimer reactions occurred in 75% of patients treated for early syphilis. It has also been stated that Herxheimer reactions occur in 20% of cases of late syphilis treated with penicillin. The risk of abortion in treating early syphilis in pregnant women is mentioned. The risk of incurring the therapeutic paradox in cardiovascular and hepatic syphilis and the hazards of intrathecal use of penicillin are also referred to. Sensitization reactions, urticarial, vesicular and desqua-

mative, were not frequently observed.

From the public health aspect the risk of masking syphilis when gonorrhea is treated by penicillin in a patient with pre-serological and pre-clinical syphilis is a serious one. The indiscriminate use of penicillin in undiagnosed mucocutaneous ulcerations is also a dangerous practice. Case holding in patients treated with penicillin has been found far more difficult. The patient who received an injection at each visit is much more who received an injection at each visit is much more likely to attend regularly than the patient who is only "looked at" and has a blood-specimen drawn at each visit. The necessary follow-up of veterans who have received penicillin treatment will largely be the task of the private physician. The principles of this important procedure and the reasons therefor are carefully ontlined. The question of marriage in the penicillintreated patient is summed up by the author's advice that marriage should be postponed until 2 years have elapsed during which the blood has been persistently negative and no clinical symptoms have appeared. This probationary period should be concluded with a negative report on the spinal fluid.

D. E. H. CLEVELAND

Pulmonary Tuberculosis and Pregnancy. Cohen, R. C.: Brit. J. Tuber. & Dis. Chest, 40: 10. 1946.

The author reviews the literature from the experimental, clinical and statistical aspect, pointing out that the majority of investigators comment favourably regarding the prognosis in such cases. The importance of adequate data on which to base one's observations.

however, is emphasized.

In a case of active tuberculous disease the decision re subsequent management should be delayed until the third month. If the prognosis, so far as the lesion is concerned, is considered favourable on adequate treatment, the pregnancy is allowed to continue. In more active cases with questionable prognosis, based on the lesion alone, au individualistic attitude is adopted and such factors as social status, reaction to previous preg-nancies, intelligence and co-operation of the patient is considered.

A report is made on 177 consecutive patients with pulmonary tuberculosis who were confined. The management of these cases and infants, is discussed. Quiescent cases are encouraged to live an active sanatorium type of life. More active cases require adequate rest with or without collapse therapy. Re infants: post-natal infec-tion is considered a real danger and care re masks is emphasized. Breast feeding is allowed only in very exceptional cases.

The results of 3 groups of cases are discussed, there being 13% retrogression, the latter being defined as any unfavourable laboratory or x-ray changes observed within three months of labour. Approximately one-half the patients who retrogressed were under 30 years of age and three-quarters were primipara. Of the patients on collapse therapy 4.7% retrogressed, and those who were ou conservative treatment, 9.6%.

Comments are made on the follow-up of both mother

and child, emphasis being placed upon the importance of facilities for treatment and supervision, pointing out that the worse cases have been those in which inberculosis was unrecognized or neglected during pregnancy. Cases of active pulmonary tuberculosis with complicating tuberculous laryngitis are considered poor risks.

Changes in the diaphragmatic level and the use of pneumoperitoneum, also changes in tuberculin sensitivity. and the use of therapeutic abortion, are discussed. The latter was thought to be justified only if with proper treatment and supervision favourable progress of pulmonary tuberculosis could not be anticipated. The crucial circumstance that decided whether pregnancy would have a harmful effect or not was whether the tuberculous condition could be controlled.

J. B. ROBINSON

Diagnostic and Therapeutic Considerations of Gastrointestinal Bleeding. Jones, C. M.: New England J. Med., 235: 773, 1946.

Proper treatment of gastro-intestinal bleeding depends upon an accurate determination of the site and character of the hæmorrhage. The immediate treatment consists in overcoming the effects of blood loss, best done through the use of whole blood by gravity-drip trans-fusion, to be followed by adequate management of the causal lesion.

It is of primary importance to determine whether treatment should be medical or surgical. All cases should be considered from three points of view, the site of bleeding, the mechanism underlying the hemorrhage and the condition of the patient.

A careful history will often give the diagnosis while physical findings may or may not be helpful. In most cases of gastro-intestinal bleeding roentgenologic studies should be carried out, without manipulation, within twenty-four to forty-eight hours of its occurrence. Gastroscopy, esophagoscopy and sigmoidoscopy, if indicated, should be postponed until bleeding ceases and, when bleeding is from the lower bowel, sigmoidoscopy should precede a bariam enema.

The adequate management of gastro-intestinal bleeding requires the close co-operation of a well trained

roentgenologist and competent surgeon.

NORMAN S. SKINNER

Roentgenologic Examination in Patients with Bleeding from the Gastro-intestinal Tract. Schatzi, R.: New England J. Med., 235: 783, 1946.

In the majority of cases of gastro-intestinal bleeding the roentgenologist has the responsibility of demonstrating the anatomic lesion causing the hemorrhage and this demonstration is often made difficult by the condition of the patient. The procedure varies somewhat from case to case, being an individual problem of investigation to be decided upon by careful consultations. tion between the physician in charge and the roentgenologist.

In the absence of any clinical clue regarding the site of bleeding a seout film of the abdomen and examination of the large intestine should precede that of the æsophagus, stomach and duodenum. A careful study of the small intestine would complete the x-ray

investigation.

In the majority of eases of massive homorrhage it is clinically evident that the lesion lies in the upper part of the gastro-intestinal tract. In these cases early x-ray study is indicated, not only because of the possible necessity of surgical intervention, but also to demonstrate a peptie ulcer which may heal and disappear relatively quickly. While it is usually preferable to delay such study until twenty-four to forty-eight hours after cessation of bleeding certain cases should be done earlier.

Since a watery suspension of barium sulphate does not stimulate peristalsis or secretion to the same extent as food the author has no hesitation in administering it and examining patients shortly after bleeding has stopped, provided shock is not present. In the absence of shock certain cases are examined even before hamorrhage has ceased. Palpation is dispensed with, the patient being kept in the horizontal position and gravity turning the patient from side to side) being used to distribute the barium. Spot films are considered in-NORMAN S. SKINNER

Treatment of Mental Illness at Home by Small Doses of Insulin. Cohen, N.: New England J. Med., 235: 612, 1946.

Insulin in sufficient dosage to produce mild hypoglycemia (usually 50 to 90 units), given daily in the home under eareful medical supervision, forms a valu-able method of therapy for a wide variety of mental disorders. Such treatment may need to be prolonged over a period of several weeks but may achieve good results in cases which have failed to respond to more drastic methods, such as electroconvulsive therapy.

Insulin injections are given six times weekly with the patient fasting. The dose is gradually increased until mild hypoglycemic shock occurs. Coma is purposely avoided, the patient is kept up and about and psychotherapy, in the form of discussion with the patient, is employed in the early phases of hypoglycæmia. After a variable length of time the hypoglycemia is terminated by feeding the patient.

Twelve ease reports are presented and, in view of the favourable results obtained, further use of this treat-NORMAN S. SKINNER ment is advocated.

Treatment of Tuberculosis with Streptomycin. shaw, H. S. et al.: J. Am. M. Ass., 132: 778, 1946.

This article is a summary of observations on 100 patients who had various types of tuberculosis treated during a 2-year period. The clinical use of streptomycin appears to be based on sound laboratory investigation. It possesses the pharmacologic properties required of a substance to be used in the treatment of chronic

disease, but it is expensive to produce and difficult to procure in a quantity adequate for the treatment of tubercnlosis.

Of 12 patients with miliary tuberculosis and tubereulous meningitis treated with streptomycin 6 died, one had just started treatment and the other 5 nnmistakably improved within one or two weeks and have been observed for from 2 to 10 months. The spinal fluid improved more slowly and some abnormalities persist.. More time must elapse before any of these patients will be classified as cured. Residual neurologie disturbances, blindness, deafness, disturbed cerebellar function are present in 3 out of 4 patients with arrested tuberculous meningitis.

Those that are living were treated with 100 to 200 mgm. streptomycin by lumbar or eisternal puncture every 24 to 48 hours for 2 to 6 weeks and 2 to 3 gm. daily

intramuscularly for 6 months.

Thirty-two cases of progressive pulmonary tubercu-losis were treated with 1 to 3 gm. per day for from 2 to 6 months. Roentgenographic improvement was Sputum conversion occurred in 13. observed in 25. Reactivation of the disease attending discontinuance of treatment with streptomyein has been observed in 6

cases; 5 patients died.

There was prompt improvement in 5 out of 7 cases with ulccrating tuberculous lesions including larynx, hypopharynx, trachea and the large bronchi and ± of these had no recurrence for one year. Tuberculous empyema was not improved by streptomycin. Streptomyein appeared to facilitate the healing of tuberculous tracts especially those due to tuberculosis of the chest wall and tuberculous lymphadenitis. Treatment should be continued for several weeks after purulent drainage ceases, to reduce the possibility of recurrence. The average dose is 2 gm. per day for 3 or 4 months.

Streptomycin possesses some palliative value in tuberculous cystitis but is not curative of renal tuber-

eulosis and therefore cannot be regarded as a substi-tute for the surgical treatment of unilateral renal

tubereulosis.

The dosage of streptomycin recommended for tuberculosis of adults is from 1 to 3 gm. per 24 hours divided into 4 or 6 doses one of which is administered every 4 to 6 hours intramuscularly; total requirement about 360 gm. The solution for parenteral administration may contain 100 to 250 mgm. per c.c. sterile water. Used as an aerosol spray, solutions contain 25 to 100 mgm. per e.c.

Streptomycin when used for a long time, as in treatment of tuberculosis, produces reactions, the most frequent and uncomfortable of which is a disturbance of equilibrium. This often persists for several weeks after

discontinuation of the drug.

Treatment with this antibiotic should be postponed or denied to those tuberculous patients who are making satisfactory progress. It is not to be regarded as a substitute for other and proved effective forms of treat L. M. SPRATT ment of tuberculosis.

The Preponderance of Bight Hydrothorax in Congestive Heart Failure. MePeak, E. M. and Levine, S. A.: Ann. Int. Med., 25: 916, 1946.

The distribution of hydrothorax in congestive heart failure was determined in three groups of patients by three methods respectively, i.e., by thoracentesis, radio-scopy, and at autopsy. The findings obtained from these three analyses were in close general agreement through-

out the study.

Depending on the method considered, right hydrothorax predominated in from 56 to 80% of cases and distributed in 3 to 27%. When etiological groups of heart disease were considered, the predominance of right hydrothorax over left was maintained regardless of the underlying heart condition. Rheumatic heart disease and auricular fibrillation appeared to angment the influences determining a right hydrothorax, while pure left heart failure tended to mitigate these to a limited degree.

Any explanation for the distribution of hydrothorax in congestive heart failure may be attempted according to the authors, only through consideration of a number of influencing factors. However it is clear that the balance of these forces is exerted in such a manner as greatly to favour the involvement of the right pleural S. R. TOWNSEND

Dieoumarol Therapy. Levan, J. B.: Ann. Int. Med., 25: 941, 1946.

The author concludes from his studies that; Dicoumarol is an effective anticoagulant. (2) The initial dosage of 300 mgm. the first day, and 200 mgm. the second day is the most suitable schedule for inducing hypoprothrombinæmia. (3) Maintenance dosage is variable even in the same individual, and the daily plasma prothrombin time is the only index of the drug's (4) Hæmorrhage is the only toxic action of rol. It can be controlled by fresh blood or action. dieoumarol. vitamin K. (5) Absolute contraindications for use of dicoumarol are renal insufficiency, hepatic damage, bacterial endocarditis, purpura, bleeding tendencies, and recent brain or cord injury. Relative contraindications are ulcers, open wounds, faulty absorption of vitamin K as found in gastric, biliary, or bowel damage, and consistion. S. R. TOWNSEND emaciation.

Eosinophilia in Malignant Tumours: Its Significance. Isaacson, N. H. and Rapaport, P.: Ann. Int. Med., 25: 893, 1946.

Ninetecn cases of pronounced eosinophilia associated with malignant tumours are reviewed from the litera-ture. To these are added 15 cases, making a total of 34. In 90% of all the cases, metastascs were present, and in an additional 7% they were suspected but not proved. In only one was metastasis neither demonstrated or suspected. That dissemination may have been present though not clinically manifest is possible, as illustrated by two of the author's cases. Eosinophilia when associated with malignant tumour, with other causes ruled out, is indicative of dissemination of the malignant process.

The prevailing theories as to the pathogenesis of eosinophilia in malignant tumours are discussed. No definite cause has been established as yet.

S. R. TOWNSEND

Diagnosis and Treatment of Skin Manifestations of Capillary Fragility. Peck, S. M. and Copley, A. L.: New England J. Med., 235: 900, 1946.

The subject is discussed under 6 headings: vascular anatomy of the skin, with special reference to the site of eapillary reactions; the method of testing capillary fragility; the mechanism of eapillary fragility; the clinieal manifestations of capillary fragility as part of general diseases and as purely dermatological conditions; the relations of capillary fragility tests to elinical

diagnosis; and treatment.

The authors consider that the numerous methods employed for evaluating capillary resistance are too general and subject to too many variables. sider that an intradermal venom test, using that of the moccasin standardized by its effect on the vascular bed of the chick embryo is more accurate and gives valuable information in thrombyeytopenic purpura and symptomatic purpura. Among the mechanisms of eapillary fragility are mentioned the hypothesis that eapillaries and minute vessels surrounded by tissue containing hyaluronic acid, and when this is liquefied hyaluronidase activity the walls of the minute vessels lose their adequate support and rupture from intra-vascular pressure; the rôle of the elastic fibres in the tissue surrounding the minute vessels; and the loss of or inability of endothelial cells to secrete continually the necessary interendothelial coment substance. From the different mechanisms of capillary hæmorrhage discussed it is argued, that a single therapeutic approach to secure hæmostasis cannot counteract the manifestations of capillary frag

The factors influencing capillary resistance arc classified as those directly damaging the endothelium such as poisons, toxins of various diseases, metabolic products. vitamin deficiencies, those affecting endothelinm in-directly, including physiological variations such as menstruation and endoerinal disturbances and diseases of the spleen and the reticulo-endothelial system. Cutaneous diseases such as drug-emptions, Majocchi's disease, angioma serpiginosum. Schamberg's disease. Kaposi's disease, Osler's disease, among many others manifest a eapillary fragility.

The generally accepted elassification of hæmorrhagic diseases into those in which there is abnormal elottingmechanism docs not take into account such significant phenomena as the physical properties and adhesiveness of blood-elots, and recognizes only one mechanism of elotting-blood-eoagulation. It has been shown however that either the agglutination of platelets or the formation of fibrin with simultaneous or subsequent blood coagulation, and not necessarily always a combination of both phenomena, forms wound thrombi with resultant

hæmostasis.

Except in elinical or subclinical scurvy large doses of ascorbie acid have been successful in disturbances due to capillary fragility. Clinical results with vitamin P have been equally discouraging. In thrombocytopenic purpura splenectomy is the most promising form of treatment and snake venom therapy only a palliative. The intracutaneous venom test however has prognostic value in selecting eases for splenectomy.

D. E. H. CLEVELAND

Lumbar Puncture Reactions: Relative Importance of Physiological and Psychological Factors. Redlich, F. C., Moore. B. F. and Kinbell, I: Psychosom. Med., 8: 386, 1946.

One hundred hospitalized psychiatric patients were punetured routinely. From this random group were excluded all patients with gross deterioration, extreme psychotic states and contraindications to spinal puncture. Alternate patients were punctured with No. 16 and No 22 gauge needles. Other conditions were standardized.

Iu the two groups punctured with different needles patients were found to be well matched with respect to diagnosis, age. sex. and rating as to intelligence, mood, emotioual stability, chronic auxiety, and hypo-ehondriaeal trends. The patients' knowledge of the procedure and its underlying principles were evalu-ated. This proved as low as their auticipatory anxiety was high. Before the puncture about half of the patients had heard of someone who had undergone the test and 23% knew of ill effects in others.

Fifty-four per cent of the total showed some lumbar puncture symptoms. In the 16 needle group 74% reacted unfavourably as compared with the 52% in the 22 needle group. Five times as many severe reactions occurred with the large needle and the duration of symptoms was markedly longer.

The occurrence of symptoms had no significant relationship to the intelligence and emotional stability of the patient. Persons with normal mood seemed to suffer more severe headaches than those who were depressed or elated. The presence of chronic anxiety of hypochrondriasis evidently predisposed to a slight increase in complications, but there was no increase in the number of severe reactions.

Some increase in mild reactions was associated with Unlike the auxiety with regard to the procedure. Unlike the intrinsic personality traits of the patients, which did not significantly affect reactions, knowledge of illeffects in other does increase post lumbar puncture sequelæ to a statistically significant degree. Hence suggestion appears to be the primary psychological factor in the production of symptoms.

The conclusion was reached that drainage is the most significant factor in the production of symptoms following lumbar puncture, ontweighing by far the small contribution of anxiety, hypochondriasis and

PRESTON ROBB nal elements.

Radiation Treatment of Localized Malignant Lymphoma. Holmes, G. W. and Schulz, M. D.: New England J. Med., 235: 789, 1946.

Malignant tumours of lymphoid tissue may arise in various parts of the body and usually progress rapidly to a fatal termination, the average duration of life after their appearance being two to three years. Cure depends upon complete removal or destruction of the primary tumour before it has spread beyond its immediate site.

Of five hundred cases of malignant lymphoma, eollected from the records of the Massachusetts General and Collis P. Huntingdon Memorial hospitals, 15 were found to be living and free of disease more than five years after the last course of treatment. These 15 patients had all had localized malignant lymphoma and had been treated by irradiation (three by radium). The location of the tumour, while of some importance, was not a predominant factor in survival. In four cases the lesion was in the abdomen, in five in the peripheral lymph nodes and the location was varied in the remainder. The degree of malignancy was of no importance.

It is concluded that localization of malignant lymphoma is a most important factor in suggesting a favourable prognosis. Apparent cure in such cases can be obtained by irradiation or surgical removal if tumour destruction is complete. It is wise to employ the maximum amount of radiation which the tissues will tolerate without undue damage.

NORMAN S. SKINNER

Surgery

The Pyruvic Acid Method in Deep Clinical Burns. Connor, G. J. and Harvey, S. C.: Ann. Surg., 124: 799, 1946.

The objective in the treatment of the local lesion is elosure of the wound as soon as possible. Early split skin grafting is a major goal. Grafting is delayed by the presence of slough. The early removal of slough is thus of signal importance. Preliminary experiments indicated that separation of slough can be hastened if the pH on the surface of the wound can be lowered, proper attention being paid to other chemical factors. Pyruvic acid was found to possess advantages over a large series of organic and inorganic acids when used to separate burn sloughs.

A mixture of pyruvic acid solution having a pH of 1.9 and corn-starch are made into a paste (see original article). A large amount of paste is applied over the burned area to minimize neutralization by wound fluids. The paste is covered with vaseline gauze to prevent drying. Preliminary debridement is not necessary. Separation of the slough proceeds from the margin. It is advisable to incise the slough to create more "margins". The paste does not increase the depth of the burn. It is wise to give morphine or codeia about 15 minutes prior to the first dressing. Dressings should be done at 2 or 3 day intervals. In third degree burns not involving tendons or thick fascia, the wound should be ready for grafting in about a week. The slough is separated by a plane of cleavage beneath the dead tissue. It is not digested.

Properly applied pyruvic acid dressings will allow grafting to be done in 10 to 12 days. It is probable that few bacteria multiply and many will not live at the concentration of hydrogen ions present in the pyruvic acid paste.

STUART GORDON

Acute Pancreatitis. Pueston, C. B., Looby, W. E. and Risley, T. E.: Am. J. Surg., 72: 818, 1946.

The histories, symptoms and signs of a series of cases of acute pancreatitis operated upon were studied. Faith is expressed in the results of the serum amylase test. If the serum amylase is definitely elevated the differential diagnosis is materially easier, for it rises sharply in the early stages of acute pancreatitis, and is not elevated in perforated duodenal ulcer. This is important, since it is better not to operate upon cases of

uncomplicated panercatitis. The usual history of acute abdominal pain of varying intensity, tenderness and rigidity in the upper abdomen, may have been preceded by previous milder attacks or biliary colic. Leucocytosis is marked. Glycosuria and albuminuria are frequent.

Treatment is rest in bed, relief from pain, continuous gastric suction, parenteral fluids and careful observation. Biliary tract surgery should be considered after the patient has recovered. Late drainage of a pancreatic abscess may be indicated.

BUENS PLEWES

Causalgia. Ulmer, J. L. and Mayfield, F. H.: Surg., Gyn. & Obst., 83: 789, 1946.

In a series of 1,477 nerve injuries, 75 cases of severe burning pain and hyperæsthesia associated with tropic and vasomotor changes are reported. All were the result of incomplete nerve injury resulting from shell fragment or bullet wounds. Most wounds were proximal to the knee or elbow. The burning pain developed at varying intervals from within forty-eight hours to two months after wounding was exacerbated by the slightest emotional or physical disturbance, and all were relieved by thoracic or lumbar sympathectomy. All patients were irritable, critical, showed no interest in family or friends so that the disability appeared to be functional, but without exception a return to a normal, stable personality followed the relief of pain. Vasomotor disturbances were of two types: vasoconstrictor and vasodilator.

Procaine block of the appropriate sympathetic chain is eonsidered a necessary preliminary to sympathectomy as a diagnostic procedure. Relief from pain for one to three hours following this enables studies of the nerve damage to be carried out. Repeated procaine block alone did not result in cure of the causalgia. Resection of the injured segment of nerve will give relief, but not neurolysis or periarterial sympathectomy.

relief, but not neurolysis or periarterial sympathectomy. Sympathectomy should be done early to prevent psychic trauma and crippling joint stiffness as a result of prolonged pain.

Burns Plewes

Combined Abdominothoracic Approach for Carcinoma of Cardia and Lower Esophagus. Garlock, J. H.: Surg., Gyn. & Obst., 83: 737, 1946.

Since the physiology of an open thoracotomy has become better understood, surgeons are less fearful of opening the pleura. The author here describes the result of many years' study and experiment by himself and others, and the result is a comparatively simple operation to expose the lower third of the esophagus, the cardiac portion of the stomach, and if necessary, the celiae axis, spleen and tail of the pancreas.

The short left upper rectus incision is made first to enable manual exploration of the abdomen to determine operability. If no metastases are found, the incision is continued upward and laterally along the eighth intercostal space. The diaphragm is then incised to the esophageal opening. Through such an incision, a very thorough operation for carcinoma may be done under direct vision. The closure of this incision is described in detail.

Buens Plewes

Primary Retroperitoneal Tumours. Donnelly, B. A.: Surg., Gyn. & Obst., 83: 705, 1946.

Tumours arising behind the peritoneum and between the lumbar and iliac regions are often tumours of the adrenal, pancreas or kidney, or metastatic from primary tumours elsewhere, but there is also a group of primary tumours probably originating from remnants of the urogenital ridge. These latter tumonrs may be solid or cystic, white, yellow or red, single or multiple, benign or malignant. Sarcomas are most frequent, lipomas forming the bulk of the benign tumonrs though tending to undergo malignant change in this situation. The same tendency is noted among the leiomyomas. Lymphangiomas are rare. Retroperitoneal cysts of urogenital origin occur most often in women between 15 and 25 years and on the left side. It is the belief of the author that retroperitoneal tumonrs occur far more

wrist: (2) the hand is a mobile organ and not to be restricted by lines of sear; (3) it is a tactile organ; (4) it contains important deep structures and (5) it is prone to stiffen.

Cicatrix should first be excised and replaced by good pedicle skin. At the second operation, for repair of deep structures, the deep scar is excised. Excising all scar and thoroughly freeing skin borders improves nutrition of every structure in the hand. If flexion contracture is present and the skin whitens on stretching the primary eause of the contracture is in the skin. If the skin does not whiten the deep scarring is primary. Size of the skin defect is ascertained by comparing with a normal

hand held in similar position. The skin of the hand is so fashioned that it eovers the hand without strain no matter what the position. The total area of dorsal skiu of the hand and fingers is one-third greater on making a fist. Incisions should parallel wrinkles or creases and never cross them at or near a right angle. A median longitudinal incision anywhere in the hand is pernicious. Whenever the border of a graft must cross a flexion erease at a right angle, a zigzag or curved line should be made. A scar should not parallel a web. Iustead, a long tongue of graft should be laid across the web. A scar along the midlateral line of the fingers may become almost invisible. Back or front of this it will thicken and contract. Longitudinal scars about the wrist will thicken and contract. A graft on the dorsum of a finger should follow the mid-lateral line on each side, or the borders zigzagged. All dissections of the hand should be done under the ischæmia of a pueumatic tourniquet. Incisions paralleling tendons cause adhesions to the tendons their

The hand is a specialized organ for stereognosis. The pulps of the thumb and first three fingers are the eyes of the hand. Sensation should be saved in these areas whenever possible. If a fluger has to be amputated its volar skin, with its vessels and nerves, should be used as a pedicle graft to a digit in need of tactile

covering.

full length

Too prolonged splinting stiffens hands, particularly if they are swollen. All hand wounds should be closed as soon as possible. Open pediele grafting should never be done in the hand. For all but deep burns resurfacing should be done under chemotherapy at the time of granulations, or later after a temporary thin skin graft has been used. Exercise should be started early after grafting to prevent stiffening. Tightly flexed proximal interphalangeal joints may be arthrodesed in semiflexion. Deformed nails and matrices may be substituted for by free skin grafts.

If all digits have been amputated, the metacarpals may be phalangized. Opposition or remaining digits may be obtained by rotatory osteotomy through the bases of their metacarpals. Additional strength should be given these digits by transferring to their tendons those, of the unused muscles in the forearm. Loss of thumb may be repaired by transferring the index finger; or it may be reconstructed by tube pedicle and graft.

STUART GORDON

Surgical Correction of Nasal Deformities. Byars L. T.: Surg., Gyn. & Obst., 84: 65, 1947.

The nose is the most prominent feature of the face. Most corrections of nasal appearance depend on shifting the inter-relationship of its component parts, or changing their size and shape. To this end, a description of the external and supportive anatomy is given.

A plaster cast of the nose to be corrected is made and by earving the corrections on one-half of this and using it as a model at operation, greater certainty and precision are gained in the correction. A standard procedure in nasoplasty is detailed, with diagrams, and variations in this procedure are outlined to deal with variations in this procedure are outlined to dear with unusual conditions; for example, retrusion of the midpart of the face; correction of nasal deformities associated with hare lip is also discussed in detail.

The postoperative result is inferior when the tip of the nose is fleshy and thick. Postoperative splinting is

most important. It should attempt to do everything that was accomplished at operation and should be continued, usually, for twelve days.

Obstetrics and Gynæcology

The Xenopus Pregnancy-Test. Milton, R. F.: Brit. M. J., 2: 328, 1946.

The advantages of the test include its simplicity, the objectivity, the rapidity with which a result may be obtained (6 to 18 hours) and the ability to use the toads again after a resting period of about three months.

As normally carried out the test is not sensitive

enough to indicate pregnancies where gonadorrophic excretion is low, as is often the case in the early stages. The amount of urine which may be safely injected into the animal is quite small. A method of separation and concentration is described which provides a means of indicating the quantitative as well as the qualitative exerction of the hormone. Using this technique, a positive result may be obtained if the exerction of hormone is greater than about 500 I.U. a day—a condition which very rarely occurs in the absence of pregnancy, and usually is manifest after the first two weeks of pregnancy.

ROSS MITCHELL

Prolapse of the Umbilical Cord. Gusberg, S. B.: Am: J. Obst. & Gyn., 52: \$26, 1946.

As in other serious disorders where treatment is diffiicult, early recognition is most important. The author advises (a) prompt pelvic examination when the fetal heart indicates distress; (b) scrupulous attention to the time of rupture of membranes in breech and transverse presentations and multiple pregnancies with immediate pelvic examination unless contraindicated. Successful outcome is to be anticipated with full cervical dilatation by the use of the appropriate obstetrie operation: foreeps delivery, breech extractiou, or version and extraction. carried out promptly but without undue haste. It is wise to allow fetal recovery from anoxia (after

elevation of presenting part) before attempting delivery.

Improvement in results with incomplete eervical dilatation might be obtained by pursuing the following policy: (a) with recognition of a prolapsed cord, the patient should be transferred to a delivery room table, placed in combination lithotomy Trendelenburg position, annesthetized with oxygen ether by a trained annesthetist and examined under sterile conditions; (b) the examiner should lift the presenting part out of the inlet in an effort to relieve pressure on the cord; (c) if the fetal heart returns to normal and if the patient is primiparous, or the eervix less than 3 F dilated, the patient should be subjected to Cæsarean section. While preparations for operation and induction of full anxithesia are completed, the examiner should continue to hold the presenting part out of the pelvis; the fetal heart should be checked repeatedly; (d) if the patient is multiparous and the cervix is 3 or more fingers dilated, it may be possible to secure safe operative dilatation by the use of the dilating bag. This, of course, calls for prior replacement of the cord which will be possible only

with lesser degrees of cord prolapse.

If the infant has already succumbed at the time of recognition of the cord prolapse or it has been so badly compromised that the fetal heart cannot be improved with oxygen and elevation, it is unprofitable to subject the mother to major obstetric operations.

ROSS MITCHELL

Treatment of Breast Abscesses with Penicillin. Florey, M. E., MacVine, J. S. and Bigby, M. A. M.: Brit. M. J., 2: 845, 1946.

In 1943-44 two simultaneous series of 18 patients suffering from breast abscesses were treated, one with accepted methods of the time and the other with a combination of intramuscular and local penicillin. average healing time in penicillin-treated cases was reduced to half that of controls. Suppuration was hastened rather than retarded but ceased more rapidly. The use of stilbæstrol was not necessary, and the mothers were able to continuo suckling throughout treatment. The number of operations was reduced from 22 to 4. The total number of days which treatment at the hospital required was reduced from 661 to 232.

The methods of treatment with penicillin are described in the text and depend on the preliminary use of intra-muscular injections followed by local administration.

ROSS MITCHELL

Endometriosis. Fallon, J. F., Brosnan, J. T. and Moran, W. G.: New England J. Med., 235: 669, 1946.

Endometriosis is a frequent, not a rare, disease. A test period at the Fallon Clinic proved that it occurred with greater frequency among women than did neute appendicitis. Contrary to general opinion endometriosis possesses a basic syndrome which makes diagnosis possible. This syndrome consists of cumulatively increasing dysmenorrhoa occurring after about five years of menstruation without pregnancy. It is an antivenereal disease, being associated with sexual unfulfillment. The prophylaxis appears to be early marriage and a child every few years.

Endometriosis is a new growth of menstruating endometrium which tends to spread throughout the pelvis enusing chemical peritonitis, dense adhesions, sterility, destruction of ovaries and intestinal stricture. Ovarian hormone is necessary to the progress of the disease. Ovarian deactivation will arrest progress but, if castration is to be avoided, diagnosis must be made early before the lesions have become

mechanically unresectable.

The diagnosis of endometriosis should be made on the history alone even before endouetriotic nodules can be felt in the pelvis. Early surgical exploration with thorough removal of the lesions may afford long

relief and sometimes results in pregnancy.

Of the 200 cases forming the basis of this study 52 of the first hundred, and 45 of the second, required eastration. Irradiation has a place in therapy but the disease may bind intestines into a dangerously immobile target for the x-rays. NORMAN S. SKINNER

Dermatology

Contact Dermatitis from Penicillin. The Source of the Antigen. Friedlander, S., Watrous, R. M. and Feinberg, S. M.: Arch. Dermat. & Syph., 54: 517, 1946.

Three principal types of reaction to penicillin have been reported; most common is urticaria. A vesicular or bullous eruption appearing shortly after inception of treatment is believed to be related in some way to previous fungous infection of the skin. Contact dermatitis has been chiefly observed in workers with the drug. Of 5 such cases 4 were studied and 3 found to be sensitive to the active principle of penicillin. Penicillin contains little if any of the antigen residing in penicillium fungus. The period of contact was relatively long (9 to 18 months) before sensitization appeared. In view of this and the small number of cases encountered in clinical practice it is concluded that penicillin may not be a very strong allergen. Nevertheless it must be remembered that penicillin is capable of producing a contact dermatitis and in local therapy many instances will arise in which prolonged contact with it may be desirable or neces-D. E. H. CLEVELAND

Death Following Exposure to D.D.T. Hill, W. R. and Damiani, C. R.: New England J. Med., 235: 897, 1946.

The toxic effects of D.D.T. in warm-blooded animals are exerted principally on the central nervous system and the liver. With reasonable care and under ordinary conditions preparations containing D.D.T. do not present dangerous toxic hazards to human beings. Under special conditions involving an oily skin snrface, large areas exposed, high temperature and rela-

tive humidity toxic effects in men have been produced. These include increased erythrocyte destruction, increase in reticulocytes, diminution of polymorphonuclears, with the appearance of immature white cells and presence of indoxyl sulfate in the urine. symptomatology included tiredness, heaviness and aching of the limbs, diminution of reflexes, slight impairment of hearing and anxiety state. Similar results occurred in a laboratory worker who mixed 24 gm. in acctone solution with an inert powder and kneaded the mixture with bare hands.

In the fatal case reported an electrician was exposed while working in a room recently sprayed with 6% solution of D.D.T. in kerosene. He had inhaled fumes at close quarters and was sweating. An extensive pruritie skin eruption appeared the following day on trunk and extremities with an unproductive cough and dyspnæn. This persisted for a week or more when he took to bed on account of increasing weakness and weight loss. The rash became ecchymotic and there was mental agitation and apprehension. There was hamaturia, a leukocytosis of 43,000 with 20% cosinophils and 1% lymphocytes. The sedimentation rate was normal. With rapid deterioration of his condition and rising temperature there was no remarkable change in the blood findings. Clinical and roentgenological findings were consistent with a diagnosis of periarteritis nodosa. The liver became much enlarged and tender and the cephalin-flocculation test was 4-plus. Erosions of the pharyngeal walls and dysphagia appeared terminally. Autopsy findings taken in conjunction with history and clinical course led to the conclusion that this case was an exhibition of true allergy to D.D.T. and death was attributable to sensitization to this drug. The classical clinical picture shown of periarteritis nodosa, which has been observed in sensitization to iodides and sulfonamides, places D.D.T. among the drugs which may produce such a reaction simulating periarteritis nodosa.

D. E. H. CLEVELAND

Anæsthesia

Impending Death Under Anæsthesia. Bailey, H.: The Lancet., pp. 5 to 9, January 4, 1947.

The expectation of death under an anæsthetic is 1 per 1,000 when calculated on a very large number of cases from five teaching hospitals on three continents. The average emergency surgeon must be prepared to expect a mortality in excess of this naless a very definite plan of procedure for prevention and treatment of ances-thetic and operative complications is adopted. This article points out the valuable assistance that may be secured from early cardiac massage following upon sudden stopping of the pulse. Too frequently the chance to resuscitate a failing heart is lost irrevocably because of hesitancy to undertake this life saving procedure. He distinguishes between the heart stopping during "white asphyxia" and "blue asphyxia". The former may be considered primary cardiac failure and the latter secondary. The time element is important in both but less margin is available in primary cardiac failure. In the case of failure during "blne asphyxia" the cerebral mechanism is not deprived of blood—indeed it is congested and the cerebral cells therefore survive much longer.

As a procedure, he recommends pricking the ventricle with a needle within three-quarters of a minute of ascertaining that the heart has ceased to beat, and in the likely event of this simple procedure being ineffective, forthwith to massage the heart through a mid-line incision extending down from the xiphisternum, the heart being palpated through the diaphragm and compressed against the thoracic wall. Needless to say throughout all the procedure the anæsthetist should not allow any interruption of the administration of pure oxygen by mask in order to revive the heart, should it recommence to beat, with a flow of richly oxygenated blood. some instances, almost as soon as the heart starts to beat, the patient breathes spontaneously. In others artificial respiration must be carried out, sometimes for a long period. The all important fact to be remembered is that once cardiac failure has occurred, not more than 1½ minutes should be permitted to pass by before massage of the heart has been instituted. This of course is most easily done when it occurs during the course of an abdominal operation, and it is to be expected, as it has been amply demonstrated, that recovery in these cases is much more frequent and free from cerebral complications that in other operations which incur a delay.

F. ARTHUR H. WILKINSON

Neurology

Occlusion of the Basilar Artery—a Clinical and Pathological Study. Kubik, C. S. and Adams, R. D.: Brain, 69: 73, 1946.

This report was based on a study of 18 cases. The cases are reviewed with good illustrative diagrams. The blood supply of the pons and mid-brain as determined by experimental injection is described. The pons is supplied by the basilar artery and the midbrain by the basilar and posterior cerebral arteries. There are three groups of branches of the basilar artery, the paramedian branches entering the pons just lateral to the mid-line, the short circumferential branches entering the pons about one centimetre lateral to the mid-line and the long circumferential arteries, being the superior cerebellar and the inferior cerebellar.

The clinical features of thrombosis and embolism differed only in minor details. The onset was sudden and not preceded by tangile causal factors. The first symptom was usually headache, dizziness, confusion or coma. Difficulty in speaking and unilateral paræsthesias occurred in a large portion of cases. Common findings were pupillary abnormalities, disorder of ocular movements, facial palsy, hemiplegia, and or quadriplegia, and bilateral extensor plantor reflexes. Cranial nerve palsies contralateral hemiplegia might be combined. Not all of these signs were present in every case. It was common for there to be a temporary improvement. Death took place in the majority of cases in from two days to five weeks. A few cases survived. The cerebrospinal fluid was normal.

survived. The cerebrospinal fluid was normal.

As well as the 18 autopsy cases there were 7 patients who were still living after 2 to 14 months.

Four of these are described.

PRESTON ROBB

Human Toxoplasmosis. Callahan, W. P. Jr., Russell, W. O. and Smith, M. G.: Medicine, 25: 343, 1946.

Toxoplasmosis is generally regarded as a protozoan parasite, although its exact classification is not definitely determined. It has been shown that the incidence of the disease is much greater than has been generally recognized. The occurrence of toxoplasmic infection in lower animals suggests that they may serve as a reservoir of the disease and that it may be transmitted to man by some intermediate anthropod vector or by direct contact. In the infantile type the extensive destruction of the nervous system that is seen at birth is irrefutable evidence that the infection was present and progressive before birth. The method of infection of the fetus is not clear. The age of onset of the childhood type is more difficult to ascertain. It is felt that the adult type is an acquired infection and may occur at any age.

In the infantile type the severe cellular reaction

In the infantile type the severe cellular reaction seen in the leptomenings is dependent on the amount of damage to underlying brain tissue. The pathological changes within the gray matter of the cerebral eortex vary from small foci of cellular infiltration to large zones of necrosis with extensive destruction of brain substance. In many of the necrotic foci cysts form that become infiltrated with plasma cells and lymphocytes. One of the consistent findings in the infantile type is the presence of large foci of calcification within the zones of necrosis. Small granulomatous lesions are found scattered throughout the basal ganglia. Periventricular infiltration with plasma

cells and lymphocytes with ulceration of the cpendymal lining is frequently observed. Ulccrative lesions and glial nodules may occlude the aqueduct and account for the hydrocephalus that is almost always present. The pons is usually the site of advanced pathological lesions. The medulla was involved in all their cases. The degree of change in the cord was variable from small lesions to areas of extensive myelomalacia. The choroid and retina were common sites of lesions.

In adults and older children, the disease manifests itself more in the other viscera with minimal lesions of the central nervous system. Neurological signs and symptoms in infantile toxoplasmosis include internal hydrocephalus, muscular twitching, convulsions, spasticity, opisthotonus, retraction of the head, stiff neck and paralysis. Chorioretinal atrophy is almost always found. Other generalized signs are seen including jaundice, respiratory disturbances, temperature, gastrointestinal symptoms, and cardiovascular symptoms. Cerebral calcification may be seen in cerebral hemisphere, basal ganglia, and thalamus by x-ray examination. No satisfactory treatment is known.

PRESTON ROBB

Addiction to Meperidine Hydrochloride (Demerol Hydrochloride). Wieder, H.: J. Am. M. Ass., 132: 1066, 1946.

The addiction to the opiate drugs embraces three related phenomena: first, tolerance or gradual decrease in the effect produced by reapeated administration of a drug; second, physical dependence which is manifest by the appearance of a characteristic illness if the drug is withheld, and third, habituation, an intense desire for the repetition of pleasurable effects associated with the use of a drug.

Demerol should be regarded as an addicting drug in the same class as the opiates, as all three of the above phenomena have been observed. Three cases are reported in which the patients were taking extremely large doses of the drug. Reference is made to other reports where similar cases are recorded. The author feels that the same precautions should be used with this drug as with the opiates.

PRESTON ROBB

Curare and Intensive Physical Therapy in the Treatment of Acute Anterior Poliomyelitis. Ransohoff, N. S.: Bull. New York Acad. Med., 23: 51, 1947.

The author briefly describes the method of treatment with combined physiotherapy and curare that was used on 29 patients during 1945. Insufficient evidence is given to adequately compare the method with the more standard procedures now used. However the method seems promising and is worthy of further study and trial.

The dosage of curare (Intocostrin, Squibb) recommended was 0.9 units per kilogram of body weight every eight hours for the first twenty-four hours. It was then increased to 1.5 units per kilogram of body weight if there had been no adverse reaction. The physical and occupational therapy procedures used were based on the objective of re-establishing and maintaining normal muscle lengths. Patients were made ambulatory as soon as possible, thus preventing the loss of the kinesthetic sense of the upright position. It was freely admitted that the treatment could not have any possible effect on spinal cord disease.

Electromyographic studies showed resting action currents in the muscles to be diminished or obliterated by means of curare and intensive physical therapy in the form of stretching beyond the point of pain.

- PRESTON ROBB

Morphologic Changes in the Brain of Monkeys Following Convulsions Electrically Induced. Ferraro, A., Roizin, L. and Helfand, M.: J. Neuropath. & Exp. Neurol., 5: 285, 1946.

In this article a careful report is made on the study of ten monkeys. Electrical currents similar in type, intensity, duration of current flow and frequency with

that used in human electric shock therapy were shown to cause morphologie changes in the central nervous

system of monkeys.

The nerve cell alterations were mostly of the re-rsible type. The changes were mostly related to versible type. circulatory disturbances and increased permeability of the blood vessel walls. The latter was shown by distension of the perivascular spaces and perivascular edema and some diapedesis of formed blood elements.

When more intense currents of louger duration were applied, occasional minute petechial hamorrhages resulted. This supported the contention that the severity of the lesions was proportional to the intensity of the electrical current, the duration of flow, and to a lesser extent, to the number of electric shocks. The histologie changes were more pronounced in the areas of the tissue traversed by the main path of the current.

They feel that reversible chemical and structural changes and possibly some slight permanent structural damage may be at the base of the temporary alterations in the mental processes occurring in patients in the course of electrical shock therapy.

In cases where structural damage does not occur, it is conceivable that some physio-chemical change may take place in the brain structure of the animals though they may not be histologically detectable with the available techniques. In such cases histometabolic studies of brain tissue may be indicated. PRESTON 80BB

Industrial Medicine

Introducing the Five-Day Week. Bower, W. H.: Indust. Welfare, 28: 162, 1946.

The contribution of the shorter working week to increased production and to decreased absenteeism, is indicated by this article in which the author presents the results achieved from the introduction of a five-

day working weck in a medium-sized firm.

The company under observation has one plant in South London employing about 450 operators and two smaller ones with 100 and 120 workers each. Some 80% of the workers are women. The products manufactured are such instruments as syringes and hypodermic needles, the work involved is monotonous. In 1943 after the five-day week was introduced, the hours were 47 a week instead of the 51½ previously worked, The tea breaks of 15 minutes during the morning and 10 minutes during the afternoon remained unchanged, but the one hour shopping time formerly allowed each week for women employees with domestic responsibilities, was eliminated. In one of the smaller factories where careful output figures were kept for each operator, it was found that within the first fortnight production increased in every case more than 10% and in some eases by as much as 25%. Production in the main factory increased by some 12% and has remained fairly steady at this level. Absenteeism also showed marked improvement, dropping under the five-day week to between 7 and 8% from its former average of 9 to 10%. Although it rose slightly with the end of the war, largely due to general fatigue after intensive war efforts and to possible uncertainty regarding domestic position, during recent months, the situation has again improved.

Wage adjustments have been necessary in order to maintain the same basic wage as before the reduction of working hours. The management have now decided to reduce the hours still further to 45 per week and anticipate that even further reduction will be possible in the future.

MARGARET H. WILTON

Some Aspects in the Occupational Adjustment of the Blind. Farmer, E.: Occup. Psychol., 20: 158, 1946.

In the opinion of the author, the main consideration in the vocational guidance of the blind is to adjust them to the sighted world so that they may feel truly at ease and not be constantly reminded of the handicap of blindness. Generally speaking, they should be guided into occupations that are well within their mental capacity, and that are likely to produce generous remuneration. Avoidance of undue strain is

essential. The occupation selected for a blind person should be one which he can do well, thus making him feel a contributing member of society.

There are many simple occupations suitable for those persons in the lower levels of mental ability. The few who have exceptionally high mental ability can undertake administrative work at a high level, and can fill positions which automatically carry the assistance of a secretary. It is those falling in the middle ranges of mental ability who present a vocational adviser with his most difficult problems. are not capable of filling the higher posts. If they attempt something beyond their capacity, great strain will result, and yet, the simpler easy-to-learn occupations would not exist their easy-to-learn occupations would not satisfy their mental life. Special attention should be devoted to leisure pursuits; for those persons with mental ability above the average, non-vocational education is important. If their minds are insufficiently furnished to deal with their leisure time, boredom will result.

The author feels that much more could be done than at present to help in the social adjustment of the blind and advocates a sound vocational policy as

a real way of contributing towards it.

MARGARET H. WILTON

OBITUARIES

Le Dr T. Archambault est décédé le 9 janvier à l'âge de 88 ans. Il avait fait ses études classiques au collège de l'Assomption, puis avait suivi ses cours de médecine à l'école Victoria. Il s'établissait ensuite à St.Paul·l'Ermite, où il a pratiqué sa profession toute sa vie. Il s'était imposé comme le type parfait du médecin de campagne, et sa réputation s'étendit bien au delà de sa place natale.

Une fils et une fille lui survivent.

Dr. Richard Martin Bateman died February 1 at

his home in Toronto, in his 86th year. Born at Oakwood, Dr. Bateman at an early age moved to Scugog Island, where he later taught in the schoolhouse located on his father's farm, opposite Port Perry. After graduation from Eastman National Business College, Ponghkeepsie, N.Y., he returned to Canada and entered Victoria College, Cobourg. In 1886 he gradn-ated from Victoria College and received his license from the Ontario College of Physicians and Surgeons. Dr. Bateman spent some months in Great Britain in postgraduate study. In 1887 he established a practice in Pickering, where he remained until 1907, when he came to Toronto. For more than 30 years he practised in East Toronto, retiring 12 years ago.

An expert as a numismatist, Dr. Bateman had made valuable collection of coins and specialized in Canadian tokens. He was a past master of Doric Lodge, A.F. & A.M., Pickering, and a charter member of River-

dale Lodge.

Surviving are his widow and three daughters.

Dr Léon Côté, est décédé à l'âge de 78 ans à Cabano, N.B., le 31 décembre 1946.

Il était le premier médecin résidant dans ce village depuis au delà de 40 ans et il a toujours professé jnsqu'à ces dernières années.

Deux filles et un fils lui survivent.

Le Dr Benoit Dumais monrut subitement le 10

décembre, à Ste-Anne-de-la-Pocatièré.

Originaire de Ste-Denis-de-la-Bouteillerie, il est arrivé à Ste-Anne-de-la-Pocatière en 1908. Il poursuivit ses études classiques au collège oû il obtint son baccalauréat des arts en 1915. Il poursuivit ses études médicales à l'université Laval, Québec, et obtint son doctorat (c.l.) en 1919.

Après avoir commencé sa pratique médicale à St-Clément de Témiscouata, il revenait à Ste-Anne en 1921 Dr Dumais s'est pour s'y établir définitivement. surtont distingué au cours de sa carrière par sa probité professionnelle. Quantité de geus ont su profiter de ses grandes connaisances médicales continuellement afraîchies et tenues à la page; aussi laisse-t-il aux paroissiens de Ste-Anne et de la région le souvenir de ses succès, de sa conduite exemplaire, de bon chrétien et de son zèle assidu pour ses malades, et l'on peut dire comme Bossuet: "Son éloge se trouve dans le regret de ses amis".

M. lc Dr Dumais laisse dans le deuil, en plus de son

épouse, deux fils et une fille.

Dr. J. H. Duncan, formerly of Manyberries and Lethbridge, died suddenly in Saskatoon January 2, in his 75th year. A citizen of United States, Dr. Duncan came to Southern Alberta from North Dakota about 1910, settling in the Altorado district, south of Etzikom. For a number of years he practised medicine in Manyberries operating a drug store in connection with his practice.

He was active politically, having run as Independent candidate for Cypress constituency for the Alberta legislature. Some years ago he came to Lethbridge to

live, later moving to Saskatoon.

Le Dr F.-A. Fleury, directeur général de l'hôpital St-Lue et de l'hôpital Pasteur, est décédé subitement le 5 janvier, à Outremont, à l'âge de 72 ans.

Il avait été le fondateur de ces deux institutions et en était toujours demeuré l'âme dirigeante.

Né à Katevale de Hatley, près de Sherbrooke, le 8 mai 1874, il avait fait ses études à Sherbrooke et au séminaire de St-Hyacinthe pour recevoir avec distinction ses diplômes de médecin à l'université Laval de Montréal en mai 1900. Il fut interne en chef à l'hôpital Notre-Dame jusqu'en 1905 après quoi il alla se spécialiser à Paris. De retour à Montréal il dévoua sa vie à l'œuvre de l'hôpital St-Lue et Pasteur auxquels son nom restera toujours attaché.

Ténor très distingué, il fut pendant de nombreuses années membre des chorales du Gésu et de St-Louis-de-

La femme ainsi qu'une fille et trois fils lui survivent.

Dr. Archibald Leslie Foster, died in Ottawa on

January 12.

Dr. Foster, who was 80 years of age, had practised in Ottawa for more than half a century and at the time of his death was an honorary consultant on the Ottawa. Civic Hospital Board.

Dr. David Henry Gesner, of Grimsby, Ont., died on January 21, in his 78th year. Born in Kent county, he had resided at Grimsby for the last 42 years.

Surviving, besides his widow, are four sisters.

Dr. James Frederick Grant, aged 59, for many years a resident of Victoria, died January 9, in the Royal Columbia Hospital, New Westminster. He was born in Wellington, Vancouver Island.

He is survived by two sons, two daughters, five

brothers and three sisters.

Dr. William Hale, president of the Medical Society of the State of New York and a former resident of Gananoque, died January 16.

Dr. Hale took office as president of the medical society last May. He was born at Gananoque in 1886 and attended Amherst College and Queen's Medical College, from which he graduated in 1910.

Dr. Hale took up residence at Utica, N.Y., 35 years ago and interned in Faxton Hospital and the Utica State Hospital, and did postgraduate work in Manhattan State and Bellevue hospitals, New York. He opened his practice in Utica in 1914 and was commissioned in the British Army in 1915, and was with the 42nd Battalion of the Black Watch, Royal Highland Regiment of Canada. After the battle of Vimy Ridge he was invested by King George V at Buckingham Palace with the Military Cross. A year later he again was decorated for exceptional service.

He is survived by his widow, one son and one

daughter.

Dr. Tilson L. Harrison, whose thirst for adventure in the world's trouble spots for half a century led him into wars and uprisings on five continents died January 10 on a mercy mission to one of China's Communist. held sections, according to word received from Shanghai. UNRRA officials, who announced his death, gave his

age as 58, but Ontario records indicate that he was born in Tillsonburg on January 7, 1881—or 66 years ago. At the age of 14 he left home to join the 22nd Oxford

Rifles of Ontario.

Later Dr. Harrison saw service in the Philippines with a United States engineering corps during the Spanish-American War. Then he studied at the University of Toronto, took a medical degree in 1907 and headed for Mexico, where he served with Pancho Villa, Mexican rebel leader.

His wanderings led him to China, where he took part in an attempted revolution, to Mexico again and then back to Canada. At the outbreak of the First Great War Dr. Harrison received a commission and went overseas in 1917 with the Royal Canadian Army Medical Corps.

He is survived by his mother and a daughter.

Le Dr C.-E. Hayes, 74 ans, chirurgien bien connu est mort à Cowansville le 14 janvier, à la suite d'une attaque d'angine. Il laisse son épouse et deux sœurs.

Dr. George H. Jackson died in December, 1946, at his home in Port Stanley, Ont., where he practised for twenty-six years. Located at Union for many years before he moved to Port Stanley Dr. Jackson's name became a household word in many homes throughout the district. In one sense he could be called an oldtime doctor—the country type, if one cares to use that term in its broader meaning. Yet he kept up to date with modern methods and in technique, even when failing health and advancing years forced him to relinquish much of what had always been an extensive practice. Also, particularly during the years he lived at Port Stanley, he gave leadership in community affairs, his work on the village council, for several terms as reeve and as representative for the County Council, being outstanding. His was a well-rounded life, the influence of which will continue to be felt throughout the community he served so well.

Dr Louis-Napoléon Lamothe est décédé recemment à l'âge de 46 ans. Il avait fait ses études au collège Ste-Marie et à l'Université de Montréal. Il était attaché à l'hôpital Ste-Justine depuis 14 ans.

Il laisse outre son épouse, un fils, et deux filles.

Dr. Norman V. Leslie, aged 65, died on January 9 in Hamilton, Ontario. He graduated in medicine from the University of Toronto in 1908.

Dr. Isabel McConville, aged S6, an early graduate of Queen's Medical College for Women, died January 3, in Kingston, Ontario. Graduating in 1889, she practised medicine here for 57 years and was long active in Roman Catholic affairs. She was physician to the Sister of Natra Done Carnet and Hale Dien Hagnital. Sisters of Notre Dame Convent and Hotel Dieu Hospital.

Dr. James Orville Macdonald died on January 13 at Savannah, Ga., where he was spending a holiday. He was a member of the staff of Columbia University, New York, City.

Born at Strathroy, Dr. Macdonald was a graduate of Queen's University in both medicine and mining engineering. He engaged in mining engineering in Northern Ontario for a short time. After the First Great Way be according Great War he practised medicine in Kingston for a time

before taking a postgraduate course in eye, ear, nose and throat at Columbia University, where he later became a member of the staff.

A veteran of both wars, Dr. Macdonald served overseas in the First Great War with the R.C.M.C., and in the Second saw service with the United States Navy Fleet Air Arm, holding the rank of lieutenant-surgeon commander.

Surviving are four sisters.

Dr. Edward George Mason, O.B.E., died in hospital

January 3 after a brief illness. He was 72 years old.

He was born in Hamilton, Ontario, and attended Bishop's College in Lennoxville, Quebec, and McGill University where he graduated in 1902. He came to Calgary to practise that year. He was instrumental in the founding of the original Calgary Tigers football club in this city, having played the game while at school and also for the Hamilton Tigers.

Dr. Mason was-senior major of the 31st Battalion when the First Great War broke out and was given the job or recruiting the 50th Battalion. He scrved as commanding officer, with the rank of Lieut.-Col. and took the unit overseas. He was wounded in France and after his discharge from hospital he was transferred to the Royal Canadian Army Medical Corps as there was a shortage of medical officers at that time.

He was placed in command of the Shorneliffe medical hospital in England and remained in command there until June 1919 when he returned to Canada.

He worked with the Department of Pensions and Health, now the Department of Veterans' Affairs, and was neuro-psychiatrist for the local offices at the time of his death. He was a charter member of the Eugenics Board of the Province of Alberta. In 1946 he was made a life member of the College of Physicians and Surgeons, and also a Fellow of the Royal College of Surgeons.

In 1928 he was made doctor of psychiatric medicine by the University of Alberta. He was also a member of the American and Canadian Philatelic societies, past president of the Calgary Stamp Club, and a member of the Calgary Gun Club, Victoria Curling Club, the Calgary Golf and Country Club, the Glencoe Club and the Calgary Medical Association. He was awarded the jubilee medal at the time of the Coronation.

son.

Dr. William Wesley Lorne Musgrove died suddenly at his home in Winnipeg on January 4. Born in Winnipeg January 15, 1882, he moved at an early age to Stonewall. He was educated in the Stonewall schools and Wesley College before entering Manitoba College where he graduated with honours and as a medallist in 1906. After spending a year as house surgeon in the Winnipeg General Hospital, be began practice in Winnipeg. On the outbreak of the First World War he enlisted in the C.A.M.C. and went overseas in 1916 as a major with No. 4 Casualty Clearing Station, a unit raised by Manitoba Medical College. On being invalided home he served as president of the Medical review board for Military District 10.

In 1920 he was made a Fellow of the American College of Surgeons. In 1932 he was president of Manitoba Medical Alumni Association, and in 1934-35 he was president of Winnipeg Medical Society. In 1946 the Society conferred on him honorary life membership. From 1919 to 1945 he lectured in surgery and clinical surgery in the Faculty of Medicine, University of Manitoba, and served for a time as honorary surgeon in the out-patient department of the Winnipeg General Hospital.

Dr. Musgrovc was a fine athlete. He was a member of the Shamrock Football Club which won the Manitoba Championship in 1901 and then toured eastern Canada. He was active in intercollegiate sport and after gradua-tion turned to curling and golf, being a charter member of the Niakwa Country Club.

He was an active member of Young United Church, serving on the board of stewards and the music committee, and was prominent in the Kiwanis club.

Surviving are his widow, and three sons, all of whom served in the Second World War, and two of whom are doctors, Col. G. Stuart Musgrove, R.A.M.C. and Dr. J. Edward of the Mayo Clinic, Rochester.

He died as he would have wished-in harness. On the morning of his death he visited the Medical Arts Building and in driving away greeted the writer with a smile and a wave of the hand. Ave atque vale!

Ross MITCHELL

Dr. Elzear Paquin, 96-year-old veteran of the Canadian medical profession and prominent author and editor, died January 15.

Dr. Paquin was born at He Bizard in 1850. studied at the Ste Therese of Blainville seminary and at Laval (now Montreal) University. After his admission to the profession he moved to Chicago, where he practised for a number of years. While there he took a prominent part in the fight for teaching French in Chicago schools. In order to help the cause, Dr. Paquin founded and edited a weekly, Le Combat, in which he carried on the battle for Franch with signer.

which he carried on the battle for French with vigour.

He later returned to Montreal, where he resumed his practice. A fiery propagandist of the nationalist cause, he wrote for a number of publications, including the then noted Nationalist weekly.

Dr. Paquin also became prominent as a writer on philosophical subjects. He took part in the defence of Louis Riel, leader of the Northwest Rebellion, when the latter was arrested and tried at Regina. As his contribution to that cause he wrote a book, "Riel," in which he condemned the execution of the rebel leader as a national and judicial crime,

As a philosophical writer, he was the author of "La Cité du Bien et du Mal" and "La Longévité de la Vie Humaine".

Dr. Paquin is survived by two sons.

Le Dr Salluste Roy est décédé à Québec le 31 décembre à l'âge de 87 ans.

Né à St-Jean-Port-Joli, comté de L'Islet, en 1859, il obtint son doctorat en médccine en 1883, exerca sa profession avec son père, à St-Jean, durant deux années, He is survived by his widow, two daughters and a et entra en 1885 dans le service médical de l'asile de Beauport (aujourd'hui l'hôpital St-Michel-Archange), qu'il ne quitta jamais. En 1923, il fint nommé surintendant, succedant au Dr M. Delphis Bronchu.

Il laisse: trois fils, et cinq filles.

Dr. John Albertson Sampson, gynæcologist and investigator, died on December 23 in the Albany Hospital at the age of 73.

Dr. Sampson was born in Brunswick in Rensselaer County in New York State. He was graduated from Williams College in 1895 and from the Medical School of the new John Hopkins in 1899. It seems that those who were so favoured in those early days as to come under the spell of Welch and Osler were deeply inoculated with a spirit of inquiry. Even characteristic, perhaps, was the indoctrination with the gospel of work. John Sampson was no exemption. In 1905 he began the practice of gynæcology in Albany and the amount of work which he crowded into a day was said to have been prodigious. How he found time for his original work is hard to comprehend.

Dr. John Sampson will be mourned by all those who were familiar with his monumental works and more particularly by those who knew him as a scientific, tire-less, honest, and unassuming man. Through his life, medical knowledge has been enriched; through his passing, the medical world has suffered an irreparable loss.

Dr. Frederick H. Scherk died suddenly at his home in Hensall, Ontario, on January 14. He graduated in medicine from the University of Toronto in 1890.

He is survived by his widow.

Dr. Bessie Thelma Singer (née Pullan) died at Forest Hill, on January 4.

She graduated in medicine from the University of Toronto in 1909.

Surviving are her widower and two sons.

Dr. Edward Lovell Stoll, medical practitioner in Toronto for 23 years, died January 13 at St. Michael's Hospital. Hc was 52 years old.

Born in Niagara Falls, Ontario, Dr. Stoll received his early education there. In 1919, he graduated in medicine from the University of Toronto and interned in St. Michael's Hospital, before taking up private practice.

Surviving are his widow and two brothers.

Dr. Edward Vincent Sullivan died in Saint Joseph's Hospital, January 24, 1947 after a short illness. For many years Dr. Sullivan was prominent in St. Stephen as a physician and good citizen. He served in the first Great War in the C.A.M.C. and was wounded on service. He was deeply interested in the Canadian Legion and in preventive medicine. He was for many years a member of the school board at St. Stephen. He was a graduate of Tufts Medical College. Since 1942 he was in charge of the medical service at the Provincial Hospital of Fairville, N.B.

A. S. Kirkland

Le Dr Charles-Edouard Turcot est décédé le 8 janvier à l'âge de 67 ans, après une courte maladie.

Après des études exceptionnellement brillantes au Petit Séminaire et à l'Universite Laval, le jeune praticien s'était d'abord établi à St-Malo d'Auckland, dans les Cantons de l'Est. Plus tard, il fit un long séjour à Paris où il étudia sous les plus grands maîtres de son art. Il pratiqua ensuite à Pincher Creek et devint, après quelques aunées, l'associé professionnel du sénateur Blais, à Edmonton, Alberta. Il retourna une seconde fois en Europe pour se spécialiser dans la pédiatrie et vint définitivement s'établir à Québec, où sa science et son dévouement inlassable lui valurent en peu de temps une large clientèle. Créateur et médecin en chef du service de pédiatrie à l'hôpital de l'Enfant-Jésus, directeur de l'Œuvre de la Goutte de lait pour le quartier St-Roch et la Haute-Ville, le docteur Turcot était reconnu comme une autorité et devint la providence des enfants pauvres et des déshérités. En reconnaissance de sa haute valeur, l'Académie américaine de Pédiatrie l'avait admis au nombre de ses membres les plus distingués et nombre de sociétés médicales s'honoraient de sa présence et de sa collaboration.

Cinq frères et cinq sœurs lui survivent.

Dr. Wesley Whitefield Tyerman, aged 64, pioncer practitioner in the Milestone, Saskatchewan district, died suddenly at his home in Regina January 13. A native of Grey County, Ontario, Dr. Tyerman graduated from the University of Toronto in 1909 and came to Milestone that year.

He is survived by his widow, a son and a daughter.

Adding a little ascorbic acid, or vitamin C, powder to the syrup in which peaches are packed for freezing will prevent unsightly discoloration, reports the New York State Agriculturcal Experiment Station. One gram of the ascorbic acid powder, which also increases the nutritive value of the peaches, is sufficient to prevent five pints of sliced fruit from browning.

NEWS ITEMS

Alberta

A series of weekly seminars are being held at the Colonel Belcher Hospital, Calgary. Papers are presented by outstanding medical and surgical men of the Province. To date these have proved very popular and a very keen discussion follows the presentation of papers.

At the annual meeting of the Council of the College of Physicians and Surgeons of Alberta held in Edmonton on January 30, Dr. M. A. R. Young, of Lamont, was elected President. Dr. T. C. Michie, of Ponoka, was cleeted Vice-president. Other members of the Council for 1947 are: Dr. W. G. Anderson, of Wardlow; Dr. S. M. Rose, of Lethbridge; Dr. J. W. Richardson, of Calgary; Dr. J. D. Neville, of Camrose; Dr. T. H. Field, of Edmonton.

The meeting of the District No. 7 Medical Society was held in Wetaskiwin on January 10, 1947. Twenty-two doctors were in attendance. Following the business part of the meeting, Dr. B. K. Thomson, of Edmonton, discussed the medical aspects of gall-bladder disease and Dr. W. C. MacKenzie, of Edmonton, discussed the surgical aspects of this disease.

G. E. LEARMONTH

British Columbia

The Grimmett report on companies and associations selling various plans of health insurance was made public recently. In this report a great many companies were dealt with. Many of them were shown to be operating on a basis which did not give adequate service to the insured. Some were quite good, but in the opinion of the author, the most satisfactory service was given by such organizations as the Medical Services Association of British Columbia, the B.C. Telephone and B.C. Electric plans, the Civil Service Association, and one or two others of similar character. These various plans, as it happens, have all been accepted by the British Columbia Medical Association.

The resignation of Dr. A. K. Haywood as General Medical Superintendent of the Vancouver General Hospital is a matter of great regret to all those who for the past twenty years or so, have been associated with the Vancouver General Hospital under his control. Dr. Haywood has been for long one of the outstanding Medical Superintendents of Canada, and his loyalty and devotion to this great hospital have done much to bring it to its present high status of efficiency. He will be greatly missed.

The Vancouver General Hospital has been the first to sign up for the use of the Red Cross Transfusion Service, and beginning February 10, 1947, will avail itself of this Service. Other hospitals will undoubtedly follow. This will be a great advance in hospital practice.

Another general rise in hospital fees has been authorized by most of the major hospitals of B.C. One thinks with regret of the old days, when a dollar a day gave a patient everything except his doctor's fees. But the increase, in view of modern hospital service, is, of course, quite inevitable.

Dr. J. A. C. Thomson, of the Staff of Christie Street Hospital, Toronto, has joined the Burris Clinic in Kamloops, following five years' service overseas and in Canada with the R.C.A.M.C.

Dr. Phillip Bailey has joined Dr. H. B. McGregor of Penticton in his practice in that City.

- Dr. F. W. Tysoe, a new registrant in the Province, has commenced practice at Britannia Beach, B.C.
- Dr. John Brown, formerly of Bralorne, is now practising in Vancouver.
- Dr. G. E. Trueman, formerly of Tranquille, is now practising in Kamloops.
- Dr. C. J. Treffry, formerly of Toronto, is now practising in association with Dr. Howard Spohn of Vancouver.
- Dr. G. E. Little has commenced practice in Bralorne, British Columbia,

We regret to report the recent passing of Dr. J. F. - Grant of Vietoria.

Dr. John Caldwell has returned from Des Moines, Iowa, to practice in Vancouver.

J. H. MACDERMOT

Manitoba

On the oecasion of the 70th birthday of Dr. W. A. Gardner a number of his friends met at dinner in the Manitoba Club, Winnipeg, on January 31. Dr. J. A. Gunn was chairman and Dr. W. E. Campbell related the facts of Bill's life and dwelt on how he had all through retained his shining morning face. Mr. Justice Dysart, Chancellor of the University, presented Dr. Gardner with a desk set bearing the Manitoba buffalo and two fountain pens and proposed his health. Dr. Gardner replied in his inimitable fashion and related habitant stories from his native Quebec.

Dr. Wallace Grant has been appointed superintendent of the Children's Hospital, Winnipeg, in succession to the late Dr. G. S. Williams.

Manitoba Medical Service for the 12 months ending December 31, 1946, showed an operating gain of \$8,592.19, but this was on a basis of paying 65% on the claims of physicians and surgeons.

At the annual meeting of the honorary attending staff of the Winnipeg General Hospital on January 14, Dr. R. M. MaeCharles was elected chairman, Dr. L. G. Bell, vice-chairman and Dr. A. R. Birt, secretary.

The American College of Surgeons will hold a regional meeting in the Fort Garry Hotel, Winnipeg, on April 14, 15.

At Brandon on January 31 the Associated Canadian Travellers presented a cheque for \$15,500 to the Manitoba Sanatorium Board for anti-tuberculosis work in the Province. This gift brings to \$33,000 the amount given the local branch A.C.T. to the work in the past two years.

Dr. John Farr, late R.A.M.C., and Dr. John Patmore Gemmell, late R.C.A.M.C., have recently joined the staff of the Winnipeg Clinic. Ross MITCHELL

New Brunswick

Dr. Irene Allen (McPherson) of the Medical Staff of the Saint John Tuberculosis Hospital is now a Fellow of the American College of Physicians.

Dr. Milton F. Gregg, V.C., President of the University of New Brunswick, presided at the Annual Meeting of the N.B. Branch of the Canadian Cancer Society. Dr. Gregg was re-elected president for 1947-48. This young branch has done a remarkably fine job in its first year of life and the list of officers and committees elected at this meeting is proof_of the widespread interest being taken by the whole province. Plans for

next year are proposed to arouse interest, further education of the general public, provide new local diagnostic clinies, provide social service workers and household aids in stricken families and provide for prompt treatment of cancer patients in out-lying districts by aiding financially in the problem of transportation. The Medical Advisory Committee of the Branch is as follows: Dr. J. R. Nugent, Saint John; Dr. J. A. Melanson, Fredericton; Dr. H. L. Ripley, Moncton; Dr. H. S. Everett, St. Stephen; and Dr. R. A. H. MacKeen, Rothesay. Dr. Milton Gregg and Dr. J. R. Nugent were elected Councillors of the Canadian Cancer Society and Dr. J. R. Nugent was nominated as a director of the National Body.

Dr. H. S. Wright, a veteran in municipal polities in the city of Fredericton was re-elected to the city council in the recent elections which were of increased interest due to the rapid growth of this, the capital city of New Brunswick.

Dr. A. L. Donovan of Saint John is convalescing after a major abdominal operation at the Lahey Clinic in Boston. Latest reports indicate satisfactory progress.

The Moncton Tuberculosis Hospital was to be opened on January 15, 1947, but the opening date was postponed due to acute water shortage in the Moncton district. The Superintendent is Dr. Perry M. Knox who has been for some years head of the River Glade Sanatorium. Dr. Knox brings to this new appointment the experience gained in a brilliant career in special work in the treatment of tuberculosis. This new institution, the fifth hospital in New Brunswick equipped especially for the treatment of tuberculosis was created out of the General Hospital which was built during war time for the R.A.F. and R.C.A.F. depots. It is expected that orthopædic surgery of tuberculosis for the Province will be eentralized here under the direction of Dr. E. W. Ewart of Moneton.

Dr. R. T. Hayes was the special speaker at the January Meeting of the Saint John Medical Society. His subject "Ophthalmic problems of general interest". He discussed retinopathy of hypertension, diabetes, renal disease etc. in terms of diagnosis and prognosis and showed a large group of slides of retinal conditions in colour photography. Discussion and question and answer brought out the active clinical interest in this extremely specialized field.

Dr. George F. Skinner of the Surgical Staff of the Saint John General Hospital was recently appointed to a position on the Board of Commissioners of the Hospital by the municipal council of the City and County of Saint John.

Dr. A. J. Losier of Chatham was presented a life membership in the Chatham Branch of the Canadian Legion at the monthly meeting in January. Dr. Losier has been active in the interests of veterans.

Dr. R. T. Hayes was elected President of the St. Patricks Society of Saint John at the January meeting.
A. S. KIRKLAND

Nova Scotia

A metropolitan health commission caring for an area including the City of Halifax, and an extensive area beyond it was recommended some time ago by the Rockefeller Foundation. It has recently been considered again and Dr. Alan Morton, Commissioner of Health for the City of Halifax believes it would effect a saving of \$40,000 a year to the city. It is hoped that the Province will be able to assist the project financially.

Dr. Karl Garten, of Halifax, has accepted a position as radiologist at a hospital in Niagara Falls, New York.

Dr. Sidney Gilchrist accompanied by Mrs. Gilchrist and three of their children sailed recently for Cape Town, South Africa en route to Angola, Portuguese West Africa, where Dr. Gilchrist will resume his work as a medical missionary. They are faced with the prospect of making their way from the Cape to Angola across the Kalahari Desert in a jeep and a small motor truck. During the war, Dr. Gilchrist was a Major in the R.C.A.M.C., and saw service in Europe and North Africa. Following his discharge he took postgraduate work and secured his D.P.H.

The death recently of Donald A. Cameron, of Boston and Halifax, removed a man to whom the Canadian Medical Association owed a great debt. In 1921 when the affairs of the Association had reached its lowest beb, it was Mr. Cameron who helped to collect the necessary money to put it on its feet again. He afterwards made a highly successful career for himself in life insurance, and was one of the Governors of Dalhousie University.

Dr. H. R. Roby, who since his discharge from the services has been practicing in Pugwash, has located permanently in Oxford.

The physicians of Glace Bay where a weekly checkoff scheme is in effect, have notified their subscribers that they cannot continue to furnish drugs for the present check-off rate. As someoue remarked, "the miners have a strike on their hands". The whole matter is at present under review, and will no doubt result in an improved arrangement.

In a recent local address Dr. C. M. Bethune, Superintendent of the Victoria General Hospital, Halifax, stated that the new hospital building would be open in the late autumn of 1947 if there was no halt in present plans. There will be accommodation for approximately 400 beds in the new unit.

The wind blows high in Nova Scotia, at least so says Dr. J. R. Cameron, of Middle Musquodoboit. A year or so ago when answering a call on a very stormy night, a tree fell across the road demolishing the front of his car. During the last big storm the force of the wind, coupled with a slippery road, carried the car off a bridge. In both instances Dr. Cameron was unhurt, but the car damage has no doubt caused serious inconvenience. H. L. SCAMMELL

Ontario

The Medical Alumni of the University of Toronto will hold a luncheon meeting on May 15 at the time of the Ontario Medical Association Annual Meeting. The question of becoming an incorporated non-profit organization will be discussed.

Dr. A. MacVicar was recently appointed medical officer of health for the village of Markdale, to succeed Dr. R. W. Lindsay, who has resigned.

At the organization meeting of the Defence Medical Association, M.D. 2 Branch, the following officers were elected: President—Col. M. H. Brown; Vice-presidents—Lieut.-Col. J. Neilson, Group Captain A. D. Kelly; Secretary-treasurer—Major R. M. Taylor; Assistant Secretary-treasurer—Major W. E. Glass. The following officers were named on the Executive Committee—Lieut.-Col. Magnus Spence, Capt John F. Patterson, Brig. G. Sinclair, Group Captain Clark Noble, Surg.-Comdr. John McArthur.

Brig. C. S. Thompson, Director General of Medical Services, addressed the meeting saying that the Defence Medical Association was the greatest single agency for guidance in plans formulated by the Medical Directorate whose chief object it to advise the staff and, except in purely professional matters, is capable of no independent action. He announced that military hospitals were

located in Quebec, Moutreal, Kingston. Toronto, Winnipeg, and Calgary. These hospitals are to be equipped on a most complete scale. Where the concentration of troops does not warrant such a hospital, Station Hospitals of fifteen to thirty-five beds have been established for the care of minor illnesses. In still other locations, R.M.O. service is the most economical method of caring for illnesses. Where no hospital is established, complete hospitalization will be carried out by contract with the D.V.A. or civilian hospitals.

A great effort has been made to have the Active Force Medical Corps a professional as well as an administrative body. Officers entering the Corps for service are to have opportunities for keeping up with their medical studies. They will be required to refresh their professional knowledge at intervals. On entry an officer will speud a period iu General Military Corps training. On completion of this, he is posted to the Field Ambulance. After that he does general duties within the Corps. Before the conclusion of his fifth year of service, he will be brought into a D.V.A. or civilian teaching hospital for one year postgraduate training. At the end of this year, he may decide whether he wishes to continue with general duties, junior appointments in a specialty, or administrative medicine. In any case, he will be required to spend a further year in a teaching hospital before he completes his tenth year in service. After that, he is given further training as is required for his chosen line. This further training includes studies for fellowships, staff college, public health and attachments to U.S. and British forces. At any time after two years of service, he may apply for a military refresher course at the medical training centre to qualify for higher rank.

The Academy of Medicine, Toronto, held a panel on the subject of venereal disease, with the following participants: Medicine, Dr. Noble Black; Religion, Reverend C. E. Silcox, Reverend Father Fullerton; Public Health, Dr. A. L. McKay, Director of Division of Venereal Disease Control, Toronto City Health Department; Education, Dr. E. A. Hardy, Board of Education; Sociology, Mr. Roger Beams, B.A., Prisoners' Rehabilitation Society; The Manufacturer, Mr. H. W. Weis, President, Canada Glazed Papers; Labour, Miss Mary McNab, Toronto District Trade and Labour Council; Law Enforcement, Chief Constable John Chisholm, Toronto Police Department; Women, Mrs. H. E. McCullagh. They concluded that, (1) prevention is much more than a medical problem; (2) the improvements necessary in sexual morals are,—an individual respect for chastity and health, an idealism that should breed good conduct, and a sense of responsibility to the community, that these can be best fostered by a concerted effort of the home, church and school; (3) capital and labour should realize their responsibility in improving working conditions, economic conditions, and conditions that favour early marriage; (4) public interest and support of organized public health is necessary; (5) the trend to punish the purveyors and organizers of commercialized vice, rather than their help-less victims, is in the right direction.

Discussion from the floor showed keen interest from the younger members of the audience, which was comprised of physicians, public health nurses, and medical students.

Letters patent have been issued re-incorporating the Ottawa Medico-Chirurgical Society so that in future it was to be known as Academy of Medicine, Ottawa. Dr. A. V. Kniewasser is the Secretary-treasurer.

A meeting of the Ontario Secretaries of the O.M.A. was held in Toronto in January. Twenty-eight out of fifty county societies were represented. Prepaid medical care was discussed; its method of administration, the existing organizations in this field, and the present coverage of the population in Ontario. Postgraduate medical education was taken up; the Central Office of the Ontario Medical Association is always happy to

A new form of "Beminal"

"BEMINAL" FORTE

INJECTABLE (DRIED) No. 495

This product provides, when reconstituted, a high concentration of important B factors for intensive therapy. The dried form permits the preparation of solutions of varying concentrations and protects the potency of the material for an indefinite period.

Each vial is standardized to contain:

Thiamin Chloride	300 mg.
Riboflavin	
Niacinamide	_
Pyridoxine	
Calcium d-Pantothenate	



AYERST, McKENNA & HARRISON LIMITED

Biological and Pharmaceutical Chemists

MONTREAL

CANADA



assist branch societies with interesting speakers for their

scientific programs.

Dr. R. T. Noble outlined the procedure in regard to the certification of specialists by the Royal College of Physicians and Surgeons of Canada. Up to the present, 375 specialists have been registered in Ontario. At the present time it is not the policy of the College to send out lists of these, but it may be possible to publish a list in the Annual Announcement of the College.

The Joint Advisory Committee representing the College of Physicians and Surgeons of Ontario, the Ontario Medical Association, and the Universities, submitted proposed terms of reference for a Royal Commission on the Healing Arts. This has been forwarded to the Provincial Secretary for consideration. There is every hope that the personnel of this commission will be announced early this year.

A committee consisting of representatives of the

A committee consisting of representatives of the Ontario Medical Association and the Workmen's Compensation Board has been appointed to review the Workmen's Compensation Board fee schedule and reporting

forms.

D.V.A. Advisory Committees have been set up across the Domiuion for the purpose of adjudicating problems arising either in the Department or in the provision of medical care by the physicians. The Canadian Medical Association will pay an honorarium to the members of this Committee while they meet.

Dr. R. G. Ratz who has practised in Kitchener for the past twenty-five years has moved to Ottawa where he will work in the Department of National Health.

The stated meeting of the Toronto Academy of Medicine on January 7 was addressed by Dr. Chester S. Keefer of the Robert Dawson Memorial, Boston, Mass. The subject was "Use of Antibiotic Agents in General Practice". A well attended dinner preceded the meeting.

An outstanding scientific session was held at Sunnybrook Hospital in Toronto during the week of January 20 sponsored by the Workmen's Compensation Board of Ontario. Sir Reginald Watson-Jones, of London, England, presented a four-day course on the treatment of fractures. He was assisted in the program by outstanding orthopædic surgeons from the Province.

Over 600 doctors attended this course which was held in the new D.V.A. Sunnybrook Hospital. The spacious new auditorium was rushed to completion for the purpose of accommodating this record attendance.

Sir Reginald was entertained at dinner in the Royal York Hotel before addressing a special meeting of the Toronto Academy of Medicine on January 22. He was also entertained at luncheon by the Toronto East Medical Society on January 20.

The following officers have been appointed for the Porcupine District Medical Society, for 1947: Past President—Dr. G. B. Lane; President—Dr. G. M. Boutin; First Vice-president—Dr. C. R. MacLean; Second Vice-president—Dr. W. H. Atkinson; Secretary-treasurer—Dr. J. B. McClinton; Councillors to Ontario Medical Association—Dr. W. S. Legate and Dr. G. C. Armitage.

M. H. V. CAMERON

Quebec

Dr. R. R. Struthers, former pædiatrician-in-chief at the Children's Memorial Hospital, Montreal, who was overseas with UNRRA following the war in a medical capacity, will return to Europe late in March.

Dr. Struthers has accepted an appointment with the Rockefeller Foundation, New York City. This appointment will take him to Europe where it is expected he will spend the next few years in assisting in the revival of postgraduate medical training.

The Rockefeller Foundation will continue its new many continue its program.

The Rockefeller Foundation will continue its program of assisting medical graduates in Europe to come to North America for postgraduate training, in view of the

devastation of European university centres and the shortage of highly trained personnel and equipment there. Dr. Struthers' work will be in this connection.

Dr. K. E. Dowd, chief medical officer of the Canadian National Railways and Trans-Canada Air Lines, Montreal, has been elected Chairman of the Medical and Surgical Section of the Association of American Railroads.

In 1944 Dr. Dowd was awarded a Fellowship in the American College of Surgeons. For his outstanding contribution to aviation medicine, he was again hononred later in the same year by the Aero Medical Association of the United States with a Fellowship in Aviation Medicine. In April last, Dr. Dowd was chosen to represent the Aero Medical Association at the Provisional International Civil Aviation Organization (PICAO) meetings dealing with medicical requirements of flight personnel.

During the Second War, Dr. Dowd served as Medical Consultant in Civil Aviation to the R.C.A.F. and was commissioned as Honorary Wing Commander. He also was Chief Medical Consultant of the R.A.F. Ferry Command and in charge of medical services for British

Overseas Airways Corporation.

A native of Quyon. Poniac, Quebec, Dr. Dowd is a Graduate of McGill University. Following an internship at Ottawa and a number of years in the field of iudustrial medicine, he was appointed assistant chief medical officer of the C.N.R. in 1928. Dr. Dowd was appointed chief medical officer of the system in 1943.

La Société Médicale de Montréal vient d'élire à sa séance du 17 décembre dernier l'exécutif suivant pour 1947: docteur Edouard Desjardins, professeur agrégé à l'Université de Montréal et chirurgien de l'Hôtel-Dieu; vice-président: docteur Louis-Henri Gariépy, médecin de l'hôpital Notre-Dame; secrétaire général: docteur François Archambault, chirurgien de l'hôpital Notre-Dame; trésorier: docteur Origène Dufresne, professeur agrégé à l'Université de Montréal et médecin de l'Institut du Radium; secrétaire des séances: docteur Jean Denis, de l'Institut de Microbiologie.

Le Dr Fraser B. Gurd, de Montréal, a été élu récemment à la régie de l'American Collège of Surgeons pour le terme finissant en 1948.

Le Dr Maurice Giroux devient professeur titulaire d'embryologie à la Faculté de Médecine de Laval.

Le Dr St-Jean Desrosiers vient d'être élu président du Bureau médical de l'hôpital Ste-Jeanne d'Arch de Montréal. Le Dr Paul Dumas fut élu président de la Société cauadienne d'endocrinologie.

Le Dr P. P. Gauthier est le nonveau président da comité exécutif de l'Hôtel-Dieu de Montréal, tandis que le Dr J. L. Riopelle devient président du Bureau médical. Jean Saucier

General

Curriculum in Anæsthesiology.—We give a very brief summary of a report on a curriculum in anæsthesiology by the Committee on Postgraduate Education

American Society of Anæsthesiologists, Inc.

Postgraduate refresher courses.—Postgraduate courses in Anæsthesiology should be a minimum of three months' duration, supervised by a Diplomate or Fellow in Anæsthesiology and cover either general anæsthesia, all forms of regional anæsthesia or a combination of both. Exceptions may be made upon approval by the Board of

Directors of the A.S.A.

Residencies or Fellowships in Anæsthesiology.—Because of the great current demand for anæsthesiologists, it is recommended that (1) a minimum of 2 years bespent in a residency or fellowship by candidates with no previous instruction and (2) that such instruction be supervised by Diplomates or Fellows in Anæsthesiology.



Formula Flexibility-

in all infant feeding cases

ONE of the outstanding advantages of new improved DRYCO is its exceptional flexibility.

This is based on DRYCO's highprotein low-fat ratio 2.7 to 1, its ample vitamin values, its easy digestibility, its bacteriological safety, its high nutritional values, and its constant composition.

The immediate solubility of DRYCO in cold or warm water and

its economy add to its universal usefulness and acceptance.

DRYCO is for the practical feeding of the normal infant and for the special feeding of the newborn, premature, malnourished and convalescent infant and in disease.

It may be used alone, with carbohydrate, with milk, or with milk and carbohydrate. And ample potencies of vitamins A, B1, B2, and D, and im-

portant milk minerals are supplied.

Amounts of vitamins A and D are equal to or above established minimal requirements for normal infants. The increased vitamin D content adequately protects against rickets and also provides for optimum growth.

Conveniently available at pharmacies, DRYCO eliminates unnecessary delays and formula changes.





Prestige Prescription Products

for infant, child and adult feeding

BORDEN'S EVAPORATED MILK

MULL-SOY



—emulsified soy bean hypoallergenic substitute for cow's milk.



-Vitamin D fortified by direct irradiation. No finer milk in any can.

KLIM POWDERED WHOLE MILK



—Widely used for infant feeding, for special diets (notably peptic ulcer), and as a superior quality milk.

CMP POWDERED LACTIC ACID MILK



—Used by thousands of physicians because it is the most uniform lactic acid milk product obtainable.



CMP POWDERED PROTEIN MILK

—Helpful in treatment of fermentative and summer diarrhoea, acute intestinal intoxication, chronic intestinal indigestion, malnutrition, and in the care of premature and new born infants.

BORDEN'S PRESCRIPTION PRODUCTS DIVISION SPADINA CRESCENT - TORONTO 4 - ONTARIO

The Committee feels, however, that candidates anticipating positions in a University or a large institution should be urged to take a 3 to 4 years' residency or fellowship. The plan of instruction will vary, depending upon medi-

cal school or non-university affiliation.

Clinical instruction.—All residents or fellows in anæsthesiology should administer a minimum of 750 anæsthesias per year under direct or indirect supervision, using all established agents and techniques for general and regional anasthesia performed for surgery of the following categories: general abdominal, orthopædic, neuro-surgical, thoracic, eye, ear, nose, and throat, pædiatric, obstetric (including Cæsarean), plastic, and surgery for the aged. They should be thoroughly familiar with the principles and practice of preoperative medication, postoperative rounds, bronchoseopy, fluid and inhalation therapy, diagnostic and therapeutic nerve blocks. A maximum of 14 days' vacation per year should be given to each resident or fellow in Anæsthesiology.

Research.—All residents and fellows in anæsthesiology should be encouraged to do original work or write a thesis, except those assigned for one year of instruction.

Investigations may be of laboratory or elinical nature.

The curriculum recommended indicates the growing demand for anæsthetists and the very high standards

of training which are being enforced.

The full details of this report are available on application to Dr. Wesley Bourne, Chairman, Department of Anæsthesia, McGill University, Montreal.

Study of Sterility.—The third annual convention of the American Society for the Study of Sterility will be held at the Hotel Strand, Atlantic City, New Jersey, on June 7 and 8, 1947, preceding the annual A.M.A. Convention. The general theme of the meetings will be that of attempting to disseminate to the physician treating marital infertility an overall picture of the latest advances in reproduction. The convention will include original papers, round table discussions, scientifie exhibits, and personal demonstrations. Registration for the sessions is open to members of the medical and allied professions,

Additional information may be obtained from the secretary, Dr. John O. Haman, at 490 Post St., San

Francisco, 2, Cal.

The Twentieth Annual Spring Graduate Course in Ophthalmology and Otolaryngology will be held at the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Va., April 7 to 12, 1947.

Second International Congress of the International Academy of Legal and Social Medicine.—This triennal Congress will be held in Belgium (Brussels and Liége) from June 25 to 28, 1947, i.e., immediately after the elosure of the "Journées Médicales de Bruxelles". The official languages will be English and French.

The Academy will take advantage of the opportunity thus afforded to promote a renewal of international co-operation in these fields of science where the need for it makes itself more than ever felt. This co-operation will be established on a new basis which will take largely into account the circumstances borne of the late war.

Persons who wish to present reports or read papers are begged to notify without delay either the President of the Congress: Prof. Dr. M. De Laet, Faculté de Médicine, 7, Rue de la Gendarmerie, Brussels, or one of the General Secretaries. Prof. Dr. P. Moureau, 47, Rue Villette, Liége; Prof. Dr. F. Thomas, 23, Kluyskensstraat, Ghent.

The Fourth International Congress for Microbiology will be held in Copenhagen, July 20 to 26, 1947, under the auspices of tha International Association of Microbiologists.

Will anyone interested in attending the International Congress for Microbiology please notify Professor E. D. G. Murray, Department of Bacteriology and Immunology, McGill University, Montreal. One.

who is in charge of the committee organizing Canadian participation in the Congress.

The Fourth International Cancer Research Congress will be held in St. Louis, Missouri, U.S.A., during September 2 to 7, 1947. The Union Internationale Contre le Cancer having accepted the invitation of the American Association for Cancer Research, the Congress will be held under the joint auspiess of these two organizations, with Dr. E. V. Cowdry, Professor of Anatomy, Washington University School of Medicine and Director of Rescurch of the Barnard Free Skin and Cancer Hospital, serving as President of the Congress.

Headquaiters will be at the Hotel Jefferson, St. Louis, where some three hundred rooms will be available for guests. In addition to these rooms, other nearby St. Louis hotels have signified a willingness to make reservations on advance notification by those contemplating attendance at the Congress. Dr. A. N. Arneson, St. Louis, Mo., is in charge of local arrangements.

Epidemiological Reporting Service. - The current volume of the UNRRA Epidemiological Information Bulletin, a bi-monthly publication since January 15, 1945, marks the cessation by UNRRA of an international epidemiological reporting service which will henceforth be carried on under the auspices of the Interim Commission of the World Health Organization.

In a last word to Bulletin readers, Dr. Wilbur A. Sawyer, for 2½ years Director of the Health Division for UNRRA, and formerly Director of the International Health Division of Rockefeller Foundation, stated:

"The time has come for transferring responsibility to a more permanent organization which can undertake a long-term development. It is with deep satisfaction and high expectations that the officers of the Health Division hand over their duties. At the same time, ther wish to express their gratitude to all those officials and organizations that have eo-operated with them in this important venture in international health."

According to the Bulletin, the World Health Organization, which recently received a million and a half dollar transfer of funds from UNRRA, will continue aid to needy countries for training health personnel and in the control of tuberculosis, malaria and other diseases.

Consulting doctors, nurses and other health personnel will, however, remain as part of UNRRA's operating staff in China through March, and with the displaced persons in Europe through June, 1947.

Elmer Hess Prize in Urology.—The Western New York and Ontario Urological Society announces the first annual Elmer Hess prize to be awarded at its next annual meeting. The prize includes twenty-five dollars cash, plus the winner's expenses to the meeting at which the prize paper will be read. Eligible are residents in urology or urologists with not more than two years in practice, residing in the Society's area. The paper may be on any subject, elinical or basic, related to urology, and shall be limited to 10 triple spaced pages. Preference will be given to original work. Three copies of the papers should be mailed to Dr. N. W. Roome. 170 St. George St., Toronto 5, Ontario, before July 1, 1947.

International Union Against Tuberculosis.—A meet ing of the Executive Committee of the International Union Against Tuberculosis was held in Paris on November 7, 1946. The following members attended this meeting: Professor Lopo de Carvalho, President; Professor Fernand Bezancon, Secretary General; Dr. Castello Braneo, Associate Secretary General; M. Achard, Treasurer; Dr. G. Derscheid; Dr. Kendall Emerson, accompanied by Mr. F. D. Hopkins; Moltke Nansen; First Secretary to the Norwegian Embassy in Paris, representing Professor Erolich: Dr. Morland. Paris, representing Professor Frolich; Dr. Morland. representing the Duchess of Portland, accompanied by Dr. Harley Williams; Professor J. Parisot, delegate World Health Organization; Dr. Telatyoki, representing Dr. Piestrzynski, accompanied by Dr. Skokowska. Rudolf.

CRYSTALLINE PENICILLIN — CONNAUGHT

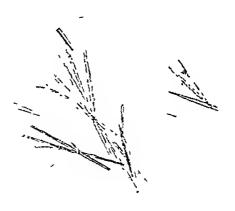
Research in the Connaught Medical Research Laboratories now makes available to the medical profession in Canada a highly purified penicillin in crystalline form.

ADVANTAGES

HIGH PURITY—This product is supplied as a white crystalline powder.

MINIMUM OF PAIN OR LOCAL RE-ACTION—Because of its high degree of purity, pain on injection is seldom reported and local reactions are extremely rare.

STABLE AT ROOM TEMPERATURE— Crystalline penicillin is heat-stable, and in the dried form can be safely stored at room temperature for at least three years. No refrigeration is required except when the material is in solution.



PHOTOMICEOGRAPH
OF PENICILLIN CRYSTALS

HOW SUPPLIED

Crystalline Penicillin–Connaught is available from the Laboratories in sealed rubber-stoppered vials of 100,000, 200,000, 300,000 and 500,000 International Units.

CONNAUGHT MEDICAL RESEARCH LABORATORIES

University of Toronto Toronto 4, Canada

In accordance with a proposal made by Professor Parisot and by Dr. Kendall Emerson, the Committee adopted a memorandum to the Interim Commission of the World Health Organization, expressing the wish that a close co-operation be established between this Organization and the International Union Against Tuberculosis. After reminding his Colleagues that the Union had not been dissolved and that the Society established in Berlin in 1941 to replace it had been short-lived, the Secretary General requested them to summon a meeting of the Council of the Union. It was decided that the Council would meet in Paris on July 24 and 25, 1947, and that the scientific subject inscribed on the agenda would be the present status of research work on streptomycin.

BOOK REVIEWS

Bibliography of Infantile Paralysis. Compiled by Ludvig Hektoen, Chief Editor of the Archives of Pathology and Ella Salmonsen of the John Crerar Library in Chicago. 672 pp. \$18.00. The National Foundation for Infantile Paralysis in the United States, J. B. Lippincott, Montreal, 1946.

Every so often a book appears which is a milestone in medicine. Such is the volume under review. It covers 8,320 separate papers in the literature and gives in many instances succinct condensations of the articles listed. The volume is beautifully printed and thoroughly indexed.

On first opening such a tome one is struck by the size of the problem which poliomyelitis has presented over the years, as evidenced by the mountain of literature which it has generated. As one passes from the eighteenth century to present times one is impressed by the shift in emphasis from mere descriptions of the clinical entity to the current efforts to solve the problems of virus transmission in this and in other diseases. It is sobering indeed to thumb through thousands of references dealing with false hopes and "sure eures" which were given currency in nearly every language in the world. It makes one realize how much the practice of medicine is changed by one solid factual observation or one technical advance permitting further scientific enquiry. The isolation and identification of the virus, its transmission in experimental animals, its occurrence in faces and sewage, months after elinical recovery, are all a far cry from the earlier writings brought to us so methodically in this amazing volume. Yet, the spirit of observation was the same, and today's researchers would be the first to admit that they saw further because they stood on the shoulders of their predecessors. In fact there is a familiar ring to Under-wood's description in 1789 of the therapy then in use: "Blisters or caustics on the os sacrum and the great trochanter and volatile and stimulating applications to the legs and thighs, have been chiefly depended upon".

This is a book for every medical library, laboratory and health unit.

Hospital Care of the Surgical Patient. G. Crile, Jr., Surgeon, Cleveland Clinic and F. L. Shively, Jr., Assistant Surgeon, Cleveland Clinic. 288 pp. illust., 2nd ed. \$4.75. Charles C. Thomas Publishing Company, Springfield, Illinois; Ryerson Press, Toronto, 1946.

Comparison with the first edition shows many improvements, which means that the authors plan to keep this valuable handbook abreast of the times. The preface gives the authors' reasons for writing this book, namely to standardize techniques of routine hospital procedures and to establish principles of preoperative and postoperative care for interns and Fellows in Surgery at

the Cleveland Clinic Hospital. This handbook could readily be adopted by those hospitals which have not compiled one of their own for intern and resident staffs. It is even more important for the student to have a complete guide to the physiological principles of preoperative and postoperative care and the management of surgical complications. The student will find this book easily readable, well organized, and provided with ample references. The section on physiological principles is excellent.

The reviewer can offer a few mnor criticisms. In Section II, sub-heading "S",—Thrombophlebitis, Phlebothrombosis, and Pulmonary Embolism—the discussion of femoral vein ligation is somewhat misleading. When pulmonary embolism occurs in phlebothrombosis and the patient survives, is not ligation of femoral indicated to prevent additional emboli? Then, Section IV is headed—Postoperative Care,—yet under sub-heading "P" both the preoperative and the postoperative care of the patient with hyperthyroidism are given. Would it not be more consistent to deal with operations for hyperthyroidism in the same way as operations on the stomach, the colon, the rectum, are dealt with, i.e., put the preoperative care under Section IV? Or, if hyperthyroidism is considered a special case, give it a section in itself?

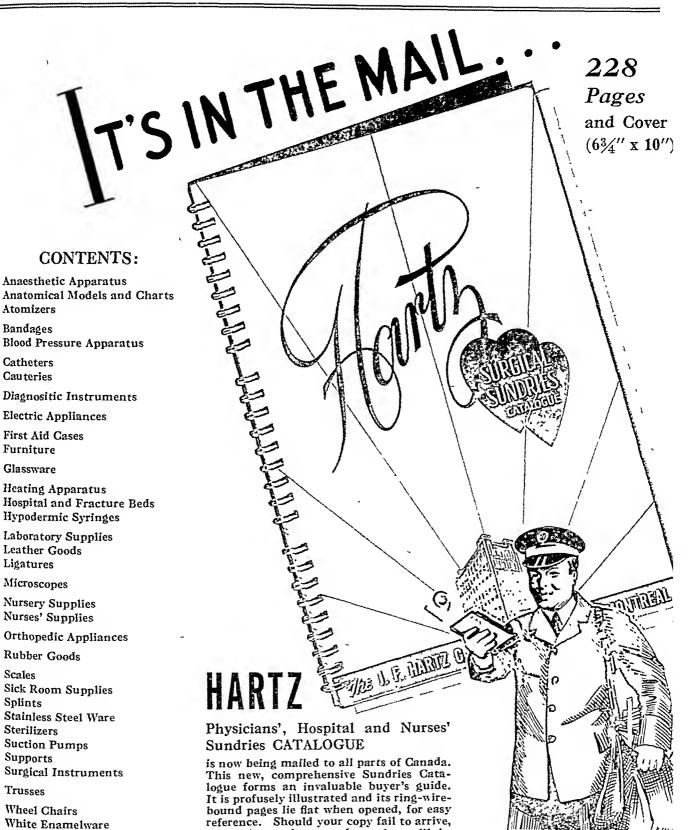
Mongolism and Cretinism. C. E. Benda, Director, Wallace Research Laboratory for the Study of Mental Deficiency, Wrentham, Mass. 310 pp., illust. \$6.50. Grune & Stratton, Inc., New York, 1946.

This book is a very extensive and complete review of Mongolism and Cretinism. Any one interested in an extensive study of either of these two conditions in childhood should certainly read this book. There is a chapter on the history, frequency and terminology. The chapter on physical characteristics and diagnosis contains photographs showing typical cases with excellent pictures of the diagnostic signs. There is a chapter devoted to the Nervous System in these diseases, and the chapter on endocrine disease is very interesting, opening up fields for study, research and possible therapy. Other chapters are devoted to growth and development of skull and bones and x-ray characteristics of both diseases. Hæmatology, Biochemistry, Prevention and Treatment arc discussed in some detail. The book is well worth having as a reference for those interested in these conditions.

Nareotics and Drug Addiction. Erich Hesse. 219 pp. \$3.75. Philosophical Library, Inc., 15 East 40th Street, New York, N.Y., 1946.

The author here presents a comprehensive account of drugs to which man has had recourse in order to gain a subjective feeling of well-being which makes for forgetfulness of his troubles for a while. These drugs he divides into Narcotics and Stimulants. The former are defined as drugs the use of which involves danger of the development of an uncontrollable desire for them: the latter may be health-destroying if over-indulged in. but they do not usually result in true addiction. Dr. Hesse writes with the avowed purpose of offering an added weapon (dissemination of faller knowledge of drugs) in the fight against addiction.

He deals with each drug from the chemical, pharmacological and toxicological viewpoint. Thus, among the narcotics he discusses opium, morphine, the pharmacological opiates, cocoa leaves, eocaine, mescaline, hashish, intoxicating peppers and toadstools and numerous other less well known drugs. Interesting statistics are produced, with cases illustrating the effects of these drugs on animals and human subjects. The account of stimulants includes alcohols, tobacco, coffee, tea, mate, guaranca, cola, cocoa, betel and khat tea. The chapter on alcohols is, perhaps, particularly useful as it includes a great deal of technical detail of a medical and medicolegal import.



THE J. F. HABIZ CO., LIMITED

please let us know and another will be forwarded immediately.

द्धारी स्थापी सिक्सी रहिता स्टब्सिसिस्स्स



े व्हिं शीहात्त्वी रिक्स्ट्रे व्यवस्थातम्

This book provides an exact and scientific presentation of the subject. Perhaps what it lacks in imagination The author's and humour, it gains in authenticity. opinions appear to be typical of a German scientist and he approves of the German methods for the control of drugs (1930-1937). His statistics are drawn from German and League of Nations sources of that period.

Principles of Hæmatology. R. L. Haden, Chief of the Medical Division of the Cleveland Clinic, Cleveland, Ohio. 366 pp., illust., 3rd ed. \$5.00. Lea & Febiger, Philadelphia; Macmillau Co. of Canada, Toronto,

This volume of 366 pages is profusely illustrated, containing 173 original microphotographs and 95 original charts and drawings. The microphotographs are of fine quality, and the author's drawings illustrating normal and abuormal crythropoiesis are highly ingenious and instructive. This book presents a good account of the pathogenesis of anæmia, an excellent chapter on laboratory technique and contains a large number of excellent illustrations, but the remainder of the text is disappointing. It shows evidence of careless writing and poor proof reading, and it is deficient in many important particulars. There is no reference to hemolytic anemia of the new-born, and the author explains in the preface, that he has omitted an account of the Rh factor in order "to keep this volume a simple discussion of the fundamental principles of hæmatology". The only information on the anamia of lead poisoning is contained in one very brief ease report. Infectious mononucleosis is incompletely described in one brief paragraph and two short case reports. It is stated that the circulating lymphocytes in this disease "tend to be large and are mature cells". There is no description of these cells which, of course, are quite unlike the lymphocytes which are found normally in the blood. Under the heading, cryptic anamias, the author lists pernicious anamia, anamia from chronic bleeding, anemia in chronic nephritis, the anemia associated with leukæmia and idiopathie hypochromic anæmia. there is nothing cryptic about these conditions. In the chapter on the cryptic anemias, one reads: "Pernicious anæmia is responsible for many anæmias occuring without evident cause". "Pernicious anæmia is almost unknown with a coated tongue even if achlorhydria be present. It is almost the only cause for an extreme reduction in the number of red cells for which there is no apparent explanation except an idiopathic aplastic anæmia.'' Discriminating readers will be offended by such lack of literary style. The chief value of this book lies in the excellence of the illustrations.

Sir Frederick Banting. Lloyd Stevenson, M.D. pp., illust. \$6.00. The Rycrson Press, Toronto, 1946.

It was the destiny of Frederick Banting in his scientific achievement and in his person to bring Canadian medicine to the attention of the world. How this came about provides a story that is of captivating interest, not only in relating how a quiet man was forced by circumstance into the rôle of a celebrity, but also for the light it throws on the larger matters of Canadian thought and For these reasons this must be hailed as a notable book. As a major biography of a contemporary Canadian, it foreshadows the coming age in this country of critical writing, a most important part of national literature, and one in which Canada has been notably lacking. For there are such things as a Canadian tradition, and a Canadian untional character, but to date these have failed to find any distinctive expression in literature. For that reason outsiders find Canada a most baffling place to understand. The real cause of this difficulty must be traced to the fact that Canada has no national culture. Distinctively Canadian values and a Canadian way of life do exist, but because this country has not yet set itself to the task of expressing these things through its writers and arkieft, the world these things through its writers and artists, the world does not know us, and by the same token Canada herself has not become conscious of her own nature and stature.

This life of Banting therefore must be rated as a

significant achievement, for Dr. Stevenson has written a good and honest book about a representative contemporary Canadian and about the society in which he lived. It is a biography that definitely has literary form and substance. While it follows for the most part the modern form of semi-fictional biography of the magazine and screen, and is over-drauntized in places, it rises above the limitations of this formula by the excellence of the writing, the wealth of its references and its understanding and expression of the Canadian scene. Thus while written in the popular idiom and therefore capable of appeal to the public at large, the more careful reader will note that the author has skilfully provided within the framework of a popular mode of writing a thoroughly documented account of the more serious scientific matters in which Banting was engaged. There is brilliant and scrupulously fair use of sources, and the medical reader can if he wishes pass over the costume part of the story and find a detailed treatment of research problems in diabetes, silicosis, cancer or aviation medicine which will satisfy his scientific soul. This ability to move in both worlds seems to the reviewer the real achievement of this book. Not only that, but in places the writing rises to a distinguished level which is rare in books of this type. Banting thus has a biographical monument which can challenge com-parison with Flexner's life of Welch, and the recently published life of Harvey Cushing by Fulton.

Here, then, is something better than a conscientious, documented memoir. It is a very lively and human portrait of a peculiarly Canadian individual drawn by a fellow physician. Stevenson sets down the character of a Canadian—serious minded, essentially quiet-spoken and reserved, capable of a master passion for work, possessed of many interests. It is the tale of a man with talent who realized his ambition by courage and a certain stubbornness, and who all the while drew strength from the deep remembrance of things past and from the heritage which came to him from that source of so much of value in Canadian life—the small Ontario town. Thoreau's words express perfectly the way in which Banting composed his life: "Know your own bone; gnaw at it, unearth it and gnaw it still".

Four things stand out for the reviewer of this book. The ease with which the author has marshalled his vast amount of material and lighted it with interest, abundant allusion and great understanding. The fine discussion of Banting's work as an artist. The chapter telling the story of the discovery of insulin candidly and fully. The account in some of the details may be controversial, but other individuals who took part in these events will have to debate this. And finally the dramatic tale of the fatal aeroplane crash in Newfoundland and Banting's tragic death.

This was a hard book to write. Anyone who has endeavoured to write the life of a contemporary knows this. If a slenderly equipped critic may say so, Dr. Stevenson has done it well. We are grateful to him for a full portrait of a man who many in this Dominion knew, but hardly appreciated. In volumes such as this, Canada at last is becoming articulate. We are learning to understand ourselves. That is the really exciting to understand ourselves. significance of this book.

BOOKS RECIEVED

Memoir to the Academy of Sciences at Paris on a New Use of Sulphuric Ether, 1847. W. T. G. Morton: with a Foreword by J. F. Fnlton, Yale University. 24 pp. \$1.50. Henry Schuman, New York, 1946.

Modern Treatment Year Book 1946. Edited by Sir Cecil Wakeley, Fellow of King's College, London. 192 pp., illust. \$3.50. The Medical Press, London; Macmillan Company of Canada, Toronto, 1946.

Syndrome Cortico-Pleural. J. Skladal, Professeur de Physiologie Clinique à l'Université de Prague. 144 pp., illust. 160 fr. Masson et Cie, Editeurs, Paris, Ī946.

THE MACMILLAN COMPANY OF CANADA

70 Bond Street

Toronto 2, Ont.

New Book

to be published shortly

Fletcher: MEDICAL DISORDERS OF THE LOCOMOTOR SYSTEM \$10.00

By Ernest Fletcher, M.A., M.D., (Cantab.) M.R.C.P. (Lond.)

Brings under one cover the ovoilable information on the subject. Nine contributors discuss their speciolties.

NOW READY .

Buchanan:

ANATOMY

\$10.00

A new edition that is really a new book revised ond lorgely re-written by D. Wood-Jones.



THE DIAGNOSIS AND TREATMENT OF CARDIOVASCULAR DISEASE

Edited by

William D. Stroud

The practical knowledge of fifty-six leading authorities is here brought to the physician in the working terms of diagnosis and treatment.

"The brilliant list of American authors . . includes a score of names known in every part of the world. . . . Rarely before have such a number of authoritative writers combined to place their views of a branch of medicine on record, and never before of cardiovascular disease."—Sir Thomas Lewis in the Foreword.

Two volumes, 1,738 pages, 520 illustrations, second edition, 1945. \$20.50.

Write for our Catalogue of Medical Books

THE RYERSON PRESS **TORONTO**

"THE PRACTITIONER" HANDBOOKS

EDITED BY ALAN MONCRIEFF, M.D., F.R.C.P. AND WILLIAM A. R. THOMSON, M.D.

now ready

CHILD HEALTH

A new Practitioner Handbook, which deals exhaustively with its all important subject.

Demy 8vo: 256 pages. 14s net

MODERN ANÆSTHETIC PRACTICE

Demy 8vo. 146 pages. 2nd. edition, completely revised. 12s 6d net

MINOR MEDICINE

Demy 8vo. 223 pages. 14 illustrations. 2nd. impression. 12s 6d net

PSYCHOLOGY IN GENERAL PRACTICE Demy 8vo. 200 pages. 2nd. impression. 12s 6d net

MODERN DIAGNOSIS

Demy 8vo. 240 pages. Illustrated. 2nd. edition, completely revised. 12s 6d net

published by

EYRE & SPOTTISWOODE in conjunction with THE PRACTITIONER 15 Bedford Street 5 Bentinck Street London, W.1 London, W.C.2

JOURNAL OF

Canadian Medical Association

Editorial offices—3640 University St., Montreal General Secretary's office—135 St. Clair Ave. W., Toronto

Subscription rates: The Journal is supplied only to paid up members of the Canadian Medical Association with the following exceptions: for medical libraries, hospitals and doctors residing outside of Canada, the annual subscription is \$7.50; for medical students residing in Canada there is a special rate of \$2.50 per annum. All subscriptions and related correspondence should be addressed to the General Secretary's office at 135 St. Clair Avenue West, Toronto 5, Ontario.

Contributors: Articles are accepted on condition that they are contributed solely to this Journal.

Reproduction of material in this Journal for commercial purposes is not permitted.

Manuscripts must be typewritten, double spaced, and

the original copy.

References: in the case of a journal arrange as follows: author (JONES, A. B.), title, journal, volume, page, year. In the case of a book: WILSON, A., Practice of Medicine, Macmillan, London, 1st ed., p. 120, 1922.

Macmillan, London, 1st ed., p. 120, 1922.

Illustrations: A limited number will be accepted.

Photographs should be clear: drawings should be in india ink on white paper. All unmounted. Legends to be typed separately.

Reprints: May be ordered upon forms sent with galley proofs.

ADVERTISEMENTS

Advertising copy, layout and cuts should be sent direct to Murray Printing Co., 192 Spading Ave., Toronto 2-B to reach Toronto by the 10th of the month preceding date of issue.

of issue.
Classified ads payable in advance.
Rates: \$2.50 for each insertion of 40 words or less,
additional words 5c each.

News: The Editor will be glad to consider any items of news that may be sent in by readers.



Day by day.

Through 129 years of

BANK OF MONTREAL

working with Canadians in every walk of life since 1817

Classified Advertisements

NOTICE.—TUTORIALS IN SURGERY in preparation for the final examinations for the F.R.C.S. (Canada) will be held at the Montreal General Hospital during 1947, and will consist of a course in preliminary reading, beginning in April and lasting five months, and a practical session during September and October. The number of candidates accepted will be limited to ten. Application should be made to Dr. S. Jameson Martin, Montreal General Hospital.

TRAIN FOR GENERAL PRACTICE.—Six months in Obstetrics at Grace Hospital, Winnipeg, 250 beds (\$0 obstetric); six months in Pædiatrics at The Children's Hospital of Winnipeg, 135 beds. Both are teaching services of the University of Manitova, Faculty of Medicine. Internships commence April 1, July 1, October 1 and January 1. Prerequisite is one year rotating internship or equivalent. Apply to: Superintendent, The Children's Hospital of Winnipeg, Winnipeg, Manitobe.

AVAILABLE.—Obstetrician and Gynecologist desires chaic position or partnership. Excellent general training and practice previous to specialization. Specialized training in recognized Residencies. Now eligible for American Board or Canadian certification in Obstetrics and Gynecology. Apply to box \$41, Canadian Medical Association Journal, 3640 University Street. Montreal

WANTED.—Clinic group in busy Ontario city requires the services of a quantied internist, holding either certification in medicine or fellowship in the Royal College of Physicians of Canada, Apply Box 542, Canadian Medical Association, 3649 University Street, Montreal.

WANTED.—Clinic position in Obstetrics and Gynecology. Completing twenty-seven months' training in excellent Eastern U.S. Teaching Clinic, Other experience—rotating internship and four years' military service. Apply to Box 545, Canadian Medical Association Journal, 3640 University, Street, Montreal.

WANTED.—Recent graduate with 16 months' internship desires position in lumber camp or mine in North Ontario. Contract basis preferred. Has own instruments; also capable of doing minor emergency surgery. Reply Box 54t, Canadian Medical Association Journal, 3640 University Street, Montreal

WANTED.—Staff physician, for 200 bed tuberculosis santorium. Have new six room liouse or furnished suite available. Apply to Medical Superintendent, Fort William Sanatorium, Fort William, Ontario, giving full particulars re training, salary desired, etc.

WANTED.—Royal College certified Specialist in Internal Medicine (Exam.), age 34, graduate and postgraduate training in leading European medical centre, eight years' practice in Canada, experienced in wishes to associate with group or well 1 Western Canada Saskatchewan except. Box 540, Canadian Medical Association Journal, 3640 University Street, Montreal

WANTED.—Qualified Anæsthetist to have charge of Department of Anæsthesiology, 135 bed Children's Hospital. In reply please state experience and degrees held. Salary to be arranged. Apply to Superintendent, Children's Hospital of Winnipeg, Winnipeg, Manitoba.

FOR RENT.—In St. Catharines, Ontario. The office and reception room formerly occupied by the late Doctor V. P. MacMahon, Eye, Ear, Nose and Throat specialist. Completely self-contained, with private entrance. Light, heat and water also furniture included. Location long considered one of the best in the city. Immediate possession. For full information apply to C. K. Bradicy & Co. Limited, 48 St. Paul Street, St. Catharines. Telephone 386.

WANTED.—For splendid opening in Eye, Ear, Nose and Throat clinic; Central Ontario City. No financial outlay necessary. Guaranteed income. Very low overhead. Apply to Ea 513, Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Capable young doctor, 26, one year interaship, two year R.C.A.M.C., now completing year in Surgery, desires location in southern Ontario, preferably as assistant to busy general surgeon, or will purchase practice. Write Box 54. Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Specialist in radiology—diagnostic and therepeutic—for Kitchener-Waterloo Hospital, Kitchener Ontario Present capacity 200 beds. New hospital being built. Total capacity to be 300 beds. Please address applications to the Superintendent, Mr. Gordon Friesen. State remuneration desired.

WANTED.—A QUALIFIED LABORATORY TECHNICIAN for the Laboratory Staff of The Moncton Hospital, Initial salary \$110, per month or more, depending upon qualifications. Send application with full particulars of training and experience etc., to: Pathologist, The Moncton Hospital, Moncton, N.B.

WANTED.—Trained radiologist as assistant leading to partnership in established hospital and private practice in Ontario Reply to Box 546, Canadian Medical Association Journal, 54 University Street, Montreal.

TRANSLATIONS.—From German, French or Dutch scientific literature. Neat, accurate, typewritten transcripts at reasonable rates, Apply to Box 549, Canadian Medical Association Journal, 3640 University Street, Montreal.

Ciassified Advertisements

WANTED.—Trained radiologist as assistant with view to partnership in established hospital and office practice in Ontario. Apply to Box 548, Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED. — Physician, single, completed internship, as Junior Resident in 200 bed Sanatorium; full maintenance provided. Apply stating training, experience and salary required to Medical Superintendent, Royal Ottawa Sanatorium, Ottawa, Ontario.

WANTED.—Senior internship or assistant physicianship in Canadian Hospital by Canadian; married; Edinburgh graduate, 1941; Alberta licence, Experience in Scottish teaching hospital residencies. Also in high class General practice. At present studying for advanced degrees in Edinburgh, Available October, Write Box 552, Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Resident for department of radiology. Active diagnostic and therapeutic service. Approved tumour clinic. Some previous training in radiology required. Also Junior Intern. For same department. Apply Box 551, Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Office space for general practice, in or around Vancouver. Will buy or rent any good proposition. Apply Box 550, Canadian Medical Association Journal, 3610 University Street, Montreal.

WANTED.—For administrative duty in a large organization dealing with Accident Insurance in the city of Toronto, a doctor?

one with reasonably good surgical training.

Group Insurance, etcetera. Write giving f large expected to Box 553, Canadian Medical Association Journal, 3640 University Street, Montreal.

University of Toronto SCHOOL of HYGIENE



Diploma in Public Health

The next course will commence on September 22, 1947

For information regarding this course and the **DIPLOMA IN INDUSTRIAL HYGIENE** write, The Director, School of Hygiene, University of Toronto, Toronto, Ontario.

H. K. LEWIS & Co. Ltd.

MEDICAL PUBLISHERS and BOOKSELLERS

LARGE STOCK OF WORKS ON

MEDICINE AND GENERAL SCIENCE

of all Publishers.

SECOND-HAND DEPT.: 140, Gower Street, London, W.C.L. Large stock of recent editions. Rare and out-of-print books sought for and reported free of charge.

LONDON: 136 GOWER STREET, W.C.1

CABLEGRAMS:-PUBLICAVIT WESTCENT - LONDON

POST-GRADUATE COURSE IN SURGERY

(Designed for candidates for the F.R.C.S.[C.])

The Surgical Staff of the Royal Victoria Hosp tal are conducting their second annual course in surgery designed especially for those wishing to write the F.R.C.S.[C.] in October. The course consists of two sections. The correspondence portion will commence April 1st and will consist of selected reading with weekly written questions. The clinical and didactic full time course will be held at the Hospital starting the first week in August and will last two months. All the required work will be presented by the various specialists and will consist of Physiology, Anatomy, Pathology, X-Ray in association with General and Special surgery.

Fee for course, \$225.00.

Address applications or inquiries to:

THE POST-GRADUATE BOARD
Royal Victoria Hospital
Montreal

New, Revised Edition

THE PARASITES OF MAN

Ву

Thomas W. M. Cameron

In this second edition, Dr. Cameron, Professor of Parasitology, McGill University, and Director, Institute of Parasitology, Macdonald College, has included an appendix dealing with parasites and parasitic diseases of exotic origin likely to be seen in north temperate climates as the result of the war. A number of new illustrations and diagrams have been added.

"This book is well written and illustrated and is accurate in subject matter." — Journal of the American Medical Association.

Price, \$3.25

THE UNIVERSITY OF TORONTO PRESS

The Royal College of Physicians and Surgeons of Canada ANNOUNCEMENT OF 1947 EXAMINATIONS

FELLOWSHIP IN MEDICINE

The Examination may be taken in MEDICINE, or in Medicine with emphasis on one of the following Specialties:

Dermatology and Syphilology Neurology and Psychiatry

Pædiatrics Radiology

FELLOWSHIP IN SURGERY

The Examination may be taken in SURGERY, or in Surgery with emphasis on one of the following Specialties:

Neurosurgery

Obstetrics and/or Gynæcology

Orthopædic Surgery

Urology

CERTIFICATION OF SPECIALISTS

The Examination may be taken in any of the following Specialtics which have been approved for certification:

Anæsthesia

Dermatology and Syphilology

General Surgery

Internal Medicine

Neurology and/or Psychiatry

Neurosurgery

Obstetrics and/or Gynæcology

Ophthalmology

Orthopædic Surgery Otolaryngology Pædiatrics

Pathology and/or Bacteriology Physical Medicine

Plastic Surgery

Radiology: Diagnostic and/or Therapeutic

Thoracic Surgery

Urology.

Applications must be received before June 30th for the Examinations which will be held in October and November, 1947.

In both the Fellowship and Certification all candidates must take the written and the oral

and clinical portions of the Examination.

Information regarding the dates of the Fellowship and the Certification Examinations, copies of the Regulations, and Application Forms, may be obtained from:—

JOHN E. PLUNKETT, M.D., F.R.C.P.[C], Honorary Secretary, The Rôyal College of Physicians and Surgeons of Canada, 150 Metcalfe Street, Ottawa. Canada

Twenty-eighth Annual Session

THE AMERICAN COLLEGE OF PHYSICIANS

Palmer House, Chicago, Ili.—April 28 - May 2, 1947

A program of General Sessions, Panel Discussions, Clinics and Demonstrations; eminent authorities in the various fields of Internal Medicine and related Specialties; a large Technical Exhibit of highest excellence; the Annual Convocation for the induction of new Fellows.

For hotel accommodations, address the A. C. P. Housing Committee, c/o The Chicago Convention Bureau, 33 N. La Salle St., Chicago 2, Ill.

For detailed Programs, address The Executive Secretary, American College of Physicians, 4200 Pine Street, Philadelphia 4, Pa. .

Qualified physicians are cordially invited to attend.

LeRoy H. Sloan, M.D., General Chairman Chicago, Ill.

David P. Barr, M.D. President New York, N.Y.

UNIVERSITY OF TORONTO

Faculty of Medicine

REFRESHER COURSE FOR GENERAL PRACTITIONERS

The Faculty of Medicine of the University of Toronto offers a General Refresher Course of four weeks from April 14th to May 10th, 1947. Instruction will be given in the following subjects: Medicine, Surgery, Obstetrics and Gynæcology and Pædiatrics.

This course will be given provided at least 25 applicants have registered before April 1st. Not more than 60 applicants can be accepted.

The fee will be \$50, payable in advance to the Chief Accountant, Simcoe Hall, University of Toronto.

THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL

(The Pioneer Post-Graduate Medical Institution in America.)

OBSTETRICS, GYNECOLOGY and ALLIED SUBJECTS

A full time course. In Obstetrics: Lectures, prenatal clinics, witnessing normal and operative deliveries, operative obstetrics (manikin). In Gynecology: Lectures, touch clinics, witnessing operations, examination of patients pre-operatively, follow-up in wards post-operatively. Obstetrical and Gynecological pathology. Regional anesthesia (cadaver). Attendance at conferences in Obstetrics and Gynecology. Operative Gynecology (cadaver).

PROCTOLOGY AND GASTRO-ENTEROLOGY

A combined course comprising attendance at clinics and lectures; instruction in examination, diagnosis and treatment; witnessing operations; ward rounds; demonstration of cases; pathology; radiology; anatomy; operative proctology on the cadaver.

FOR THE GENERAL SURGEON

A combined surgical course comprising general surgery, traumatic surgery, abdominal surgery, gastro-enterology, proctology, gynecological surgery, urological surgery. Attendance at lectures, witnessing operations, examination of patients pre-operatively and post-operatively and follow-up in the wards post-operatively. Pathology, roentgenology, physical therapy. Cadaver demonstrations in surgical anatomy, thoracic surgery, regional anesthesia. Operative surgery and operative gynecology on the cadaver. cadaver.

EYE, EAR, NOSE and THROAT

A combined full-time course covering an academic year (9 months). It consists of attendance at clinics, witnessing operations, lectures, demonstration of cases and cadaver demonstrations; operative eye, ear, nose and throat on the cadaver; head and neck dissection (cadaver); clinical and cadaver demonstrations in bronchoscopy, laryngeal surgery and surgery for facial palsy; refraction; roentgenology; pathology, bacteriology and embryology; physiology; neuro-anatomy; anesthesia; physical therapy; allergy; examination of patients pre-operatively and follow-up post-operatively in the wards and clinics. Also refresher courses (3 months).

FOR INFORMATION ADDRESS

MEDICAL EXECUTIVE OFFICER, 345 West 50th St., New York City 19 3



FURACIN SOLUBLE DRESSING

Furacin—newest of the modern antibacterials—is a nitrofuran. It is effective against many gram-negative and gram-positive organisms, both in vivo^{1,2} and in vitro^{3,4}; its antibacterial spectrum³ compares favorably with those of other modern antibacterial agents. It is low in toxicity⁵; is effective in the presence of wound exudates; possesses excellent stability. Sensitization occurs infrequently.

Furacin Soluble Dressing contains 0.2% of this new antibacterial (5-nitro 2-furaldehyde semicarbazone), in an anhydrous base composed of carbowax (75%) and propylene glycol (25%). It melts at body temperature; its low surface tension facilitates spreading to all parts of wounds. Being water soluble, it mixes with wound exudates, penetrating pockets of pus and blood. It does not macerate the skin; is not irritating to tissue; does not retard the healing rate of wounds.

 For further information, address: Canadian Office, 77 Wellington Street West, Toronto, Ontario. Attention: Medical Director.





Accepted by the Council on Pharmacy and Chemistry of the American Medical Association

Now available in Canada through your regular source of supply.

Neter, E., & Lambarti, T. G., Am. J. Surgery. In press
 Snyder, M. L., Kiehn, C. L., & Christopherson, J. W., Military Surgeon 97:380, 1945
 Dodd, M. C., & Stillman, W. B., J. Pharmacol. & Exper. Therap. 82:11, 1944
 Cramer, D. L., & Dodd, M. C., J. Bacteriology 51:293, 1946
 Krantz, J. C., & Evans, W. E., J. Pharmacol. & Exper. Therap. 85:324, 1945



LOZENGE

Each lozenge contains 1,500 units of Calcium Penicillin in a special lozenge-base for the treatment of hæmolytic streptococcus pharyngitis, tonsillitis and all infections of the mouth and throat due to organisms which are sensitive to penicillin, Vincent's and dental infections.

Available in bottles of 20

SOLUTION

Contains 1,000 units of Calcium Penicillin per mil. (c.c.) in an isotonic solution of normal saline for the treatment of all infections of the eye, ear, nose and throat due to organisms known to be sensitive to penicillin.



Available in ½ ounce and 2 ounce bottles

(1/2 ounce only with dropper)

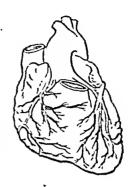
*Trade Mark Registered

CHARLES R. WILL & COMPANY LIMITED

LONDON

CANADA

to protect the decompensated heart



YDRIN BY MUSCLE...

During that early period when nocturnal dyspnea is the obvious symptom of cardiac decompensation, mercurial diuresis will avoid the strain which mounting fluid burden places upon the heart.

- Small, frequent doses of mercurial diuretic avoid distressing fluctuations in water and electrolyte levels, MERCUHYDRIN FREQUENTLY... which tend to occur when the diuretic is given weekly. In consequence the patient feels better, breathes more easily and sleeps more comfortably.

> Intramuscular injection releases the mercurial to the circulation slowly, thereby sparing conduction centers of the heart from the sudden impact of relatively massive drug concentrations which follow intravenous administration.

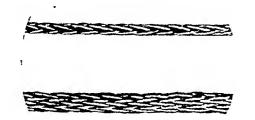
Mercuhydrin Sodium is the sodium salt of methoxyoximercuripropyl-succinylurea-theophylline. Supplied in 1 cc. and 2 cc. ampuls. Literature and clinical sample on request. Lakeside Laboratories, Inc., Milwaukee 1, Wis.

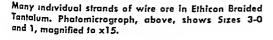
WELL TOLERATED LOCALLY



BRAIDED TANTALUM

A USEFUL, NEW SUTURE MATERIAL





ETHICON TANTALUM FOR SURGICAL USE

Sutures. Monofilament: Sizes 6-0, 5-0, 4-0. Swaged to Eyeless Atraloc needles. Braided. As described at right.

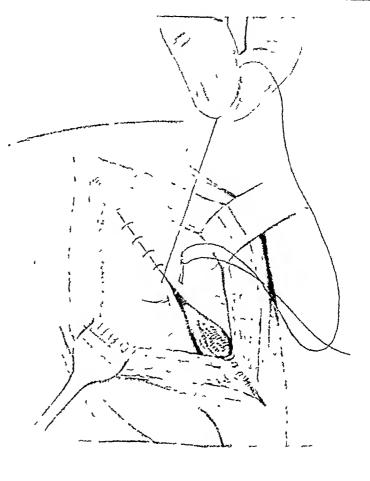
Wire. Suturing material on spools. Sizes 6-0, 5-0, 1-0, 000, 0, 2, 4.

Ribbon. For making neurosurgical hemostasis clips. Clips also supplied ready-made.

Sheet. For skull plates in cranio-plasty and general plastic surgery.

Foil. Used in neuro- and orthopedic surgery for protection of nerves and tendons

Literature describing use of Ethicon Tantalum products available on request



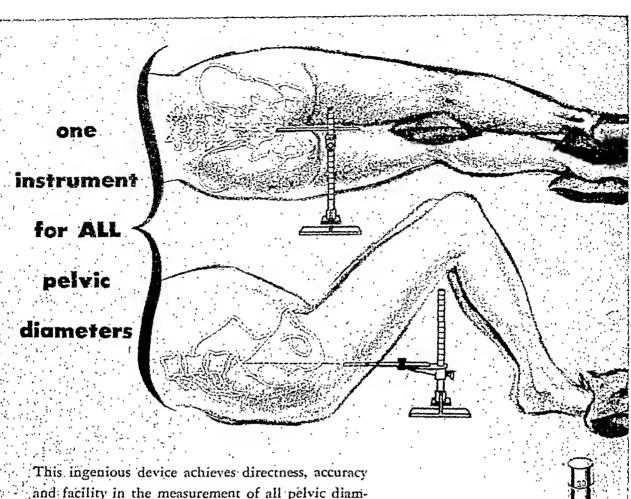
- Braided tantalum is a new Ethicon suture material which offers the surgeon certain qualities not found in other sutures.
- 1. Its "handling properties" are superior to monofilament wire. It is much stronger than silk and less variable in size.
- 2. It may be safely used in the presence of infection.
- 3. When Braided Tantalum is used as a buried suture, tissues tend to grow into the interstices, whereas silk is generally encapsulated. The attachment of the tissues to the braid tends to prevent suture migration.

Ethicon Braided Tantalum Sutures are supplied in Sizes 5-0 to 1, in 60-inch length on card reels.

Braided Tantalum has been found of special value for general surgical closure, plastic surgery, the Guyton operation for ptosis of eyelid and herniorraphy.







This ingenious device achieves directness, accuracy and facility in the measurement of all pelvic diameters. The patient lies comfortably in a relaxed supine or lateral position. No accessory devices are required for either positioning the patient or interpreting the radiograph. Measurements are read directly from the radiographs.

The Colcher-Sussman Pelvimeter will prove to be a valuable and time-saving tool for the busy radiologist and obstetrician. Picker bulletin No. 9145, describing its unique principles and applications, will gladly be sent on request.

THE COLCHER-SUSSMAN





PICKER X-RAY of CANADA LIMITED

3443 St. Denis St. Montreal, P.Q.

57 Bloor St. W. Toronto, Ont.

120 Fort St. Winnipeg, Man.



Mien E







(E)

"FFIERAVITE"-for therapeutic use

Massive doses of nine different vitamin

factors to treat acute deficiencies.

"Theravite" Capsules, No. 238, are

supplied in bottles of 30 and 100.

"SUPPLAVITE"—to supplement the diet

Prophylactic doses of six different vitamin

factors for milder deficiencies or increased

needs. "Supplavite" Tablets, No. 833, are

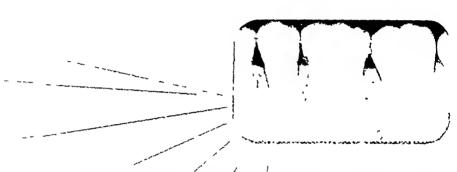
supplied in bottles of 36, 100 and 500; "Supplavite"

Liquid, No. 950, in bottles of 2 and 8 ounces.

AVERST, MICKENNA & HARRISON LIMITED - BIOLOGICAL AND PHARMACEUTICAL CHEMISTS - MONTREAL, CANADA

"ENZIFLUR"

TO AID IN THE PREVENTION OF DENTAL CARIES



IN A RECENT STUDY OF 512 CHILDREN*

Those given no medication showed an increase in incidence of dental caries of	65%
Those receiving tablets of calcium fluoride showed an increase in the incidence of dental caries of .	32%
Those receiving a combination of calcium fluoride with vitamins C and D ("ENZIFLUR") showed an increase of only	15%
Each "Enziflur" Lozenge provides:	
	_

IMPORTANT: "ENZIFLUR" Lozenges should be allowed to dissolve slowly in the mouth, thus bringing the surfaces of the teeth in contact with the fluorine-bearing saliva.

*Strean, L. P., and Beaudet, J. P.: New York State J. Med. 45: 2183 (Oct. 15) 1945.

AYERST, MCKENNA & HARRISON LIMITED

Biological and Pharmaceutical Chemists

MONTREAL



A Cleansing Trickomomocidal Film

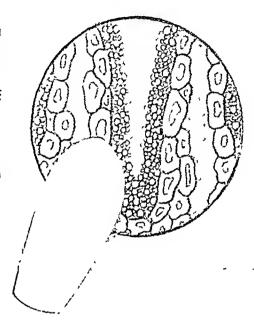
with

CEEPRYN

CETYLPYRIDINIUM CHLORIDE

VAGINAL SUPPOSITORIES

1:1000



Ceepryn Vaginal Suppositories dissolve into an emulsion-like film of extremely low surface tension, which quickly penetrates the deep rugal folds, the cervical fornices and canal, and into the openings of Skene's and Bartholin's glands.

"SEEKS OUT" TRICHOMONADS

Brought thus into intimate contact with the flagellates in their favorite retreats, Ceepryn provides a more thorough trichomonacidal action, simultaneous with its cleansing action on the tissue surfaces.

addition to their therapeutic effectiveness, Ceepryn Vaginal Suppositories are preferred because of their esthetic qualities: neat appearance, pliable consistency, nonstaining cleanliness, and ease of insertion. They may be prescribed for your most fastidious patients.

Supplied in boxes of 12, each suppository in an individual carton.

Ceeptyn" is a Registered Trade Mak of The Rim B Merrell Company



THE WM. S. MERRELL COMPANY . CINCINNATI, U.S.A. CANADIAN DEPOT: 1705 ST. CLAIR AVE. W., TORONTO 9, ONT.



o chest colds

O PRIZUMONIA

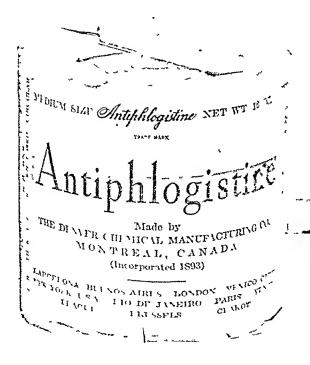
STURBENOED C

O PLEUDISY

THE moist heat of an ANTIPHLOGISTINE pack is of definite value in relieving many of the troublesome symptoms accompanying affections of the respiratory tract.

Cough—Muscular and Pleuritic Pain—Retrosternal tightness— Soreness of the Chest.

ANTIPHLOGISTINE is a ready to use Medicated Poultice—it maintains comforting moist heat for many hours.



(Made in Canada)

Antiphlogistine

THE DENVER CHEMICAL MFG. CO.

286 St. Paul Street, West, Montreal



Like an old friend, tried and true, Cheracol can be depended upon

- 1. to mitigate the severity of a cough without abolishing it
- 2. to loosen viscid and tenacious sputum without disagreeable taste or irritation
- 3. to soothe both topically and systemically

Cheracol is always welcomed by the patient. It is palatable, effective, and available. One to three teaspoonfuls every 2 to 4 hours save the patient's strength and give him needed rest.

Supplied in bottles of 16, 80, and 160 fluidounces.



"Trademark

DO DIT

Half-Skimmed Irradiated... Concentrated



. This Milk Is Easier For Infants to Digest

So many digestive disturbances in infants are traceable to too rich a milk, that many pædiatricians favour basing all feeding formulas on the use of a partly skimmed milk.

Until recently it was not possible to gain the advantages of a concentrated milk and a partly skimmed milk at the same time.

Now, however, with the development of "Farmer's Wife" Milk, both these advantages are obtainable in the one product which explains its rapidly growing popularity.

"Farmer's Wife" Milk is specially selected cows' milk, produced in a tuberculosis accredited free area, and from which some of the butter fat has been removed. It is then evaporated to double concentration, homogenized, irradiated and sterilized. When diluted with an equal amount of water, it results in a half skimmed (2% fat) milk.

"Farmer's Wife" Milk has a Vitamin D potency of 400 International Units per reconverted quart (half "Farmer's Wife"—half water).

The composition of "Farmer's Wife" Milk is standardized and therefore uniform. This is a decided advantage as it is not practical to partially skim milk at home and have it uniform since fluid milk varies in butter fat content from about 3% to over 6%.

"Farmer's Wife" Milk is always clean and sterile.

In addition to the improved digestibility due to low fat content, the superheating during evaporation and sterilization tends further to make it more digestible.



Although at present, owing to government regulations, "Farmer's Wife" Milk is not distributed in all parts of Canada, it is expected that as soon as restrictions are lifted, it will be available throughout the Dominion.

COW & GATE (CANADA) LIMITED

GANANOQUE, ONTARIO

In The Management of NEPHROPTOSIS

In one series, Morris et al,1 found that 150 of 202 patients whose treatment (non-operative) included the use of an abdominal support were relieved of their symptoms and required no further treatment. They further concluded that "too much importance should not be attached to the opinion that support tends to decrease muscle tone.'

In another series, Birdsall2 found in 33 of 86 cases where palliative measures, including the application of an abdominal belt, were elected as the treatment of choice that decided relief of symptoms resulted and the treatment was considered successful.

SPENCER is Suggested as the Support of Choice because:



A Spencer Abdominal Supporting Corset shown open and closed. Arrows show how the strain of supporting abdomen is placed on pelvic girdle, not on spine at or above lumbar region. Note the Spencer Breast Support also designed especially for her.

For a dealer in Spencer Supports, look in telephone book for "Spencer corsetiere" or write direct to us.

SPENCER INDIVIDUALLY SUPPO

For Abdomen, Back and Breasts

Each Spencer is individually designed, cut, and made for each patient. Thus, you are assured of individualized control.

*

When prescribed for nephroptosis with symptoms, a Spencer provides localized abdominal support properly correlated with back support to hold kidneys in position favorable to treatment. Improved posture, better body mechanics result. When desired, a suitable pad is incorporated in the abdominal support.

In a Spencer (left), the inner abdominal support is non-elastic. By means of straps of strong surgical webbing, it is instantly adjusted from outside without disturbing the corset.

- Morris, Harold L. Sherman, William L, and Brunton, James F. Renal Dystopia: American Jr. of Surger: 17: 395-408 (Sept.) 1932.
 Birdsall, J. C. The Symptomatology, Renal Pathology, and Treatment of Nephropiosis Journal of Urology 35: 135-155: (Feb.) 1936

MAY WE SEND YOU BOOKLET?

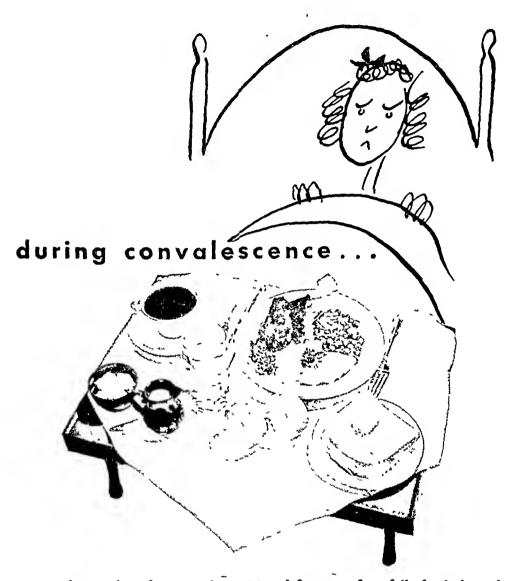
SPENCER SUPPORTS (CANADA) LIMITED, Rock Island, Quebec.

In U S.A.: Spencer, Incorporated,

137A Derby Ave., New Haven, Conn.

In England- Spencer (Banbury) Ltd., Banbury, Oxon.

Please send me booklet, "How Spencer Supports Aid Doctor's Treatment."

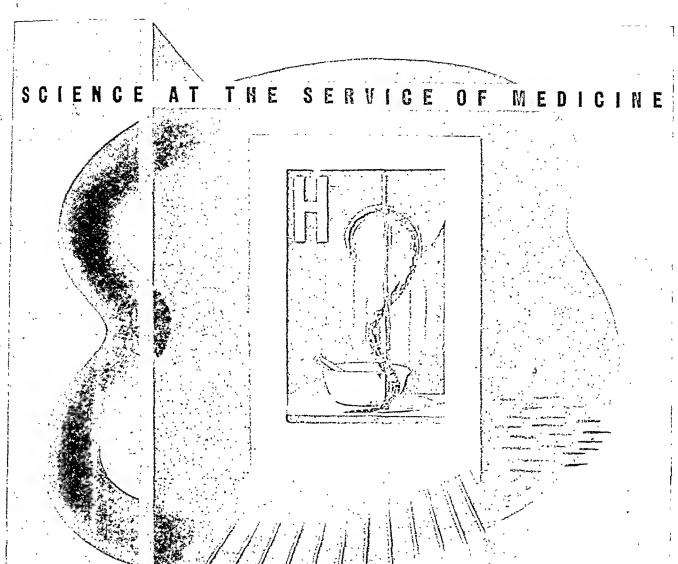


the intake of essential nutritional factors often falls far below the level necessary for optimum recovery.

ESKAY'S NEURO PHOSPHATES is a time-tested tonic, highly effective in restoring appetite. And, because this preparation is exceptionally palatable and easily tolerated, the patient will take it regularly and in adequate dosage for as long as the physician directs.

Eskay's Neuro Phosphates

Clinically approved and universally accepted





"for the prevention of rickets...

for good bone and tooth development
... and for excellent growth"

400-UNIT CARNATION MILK

on Foods and Nutrition of the American Medical Association as being effective in accomplishing the purposes indicated above, with normal infants and with children between infancy and adolescence.

Carnation Evaporated Milk provides 400 Int. units of vitamin D per

reconverted quart (half Carnation, half water). It is vitamin D increased through irradiation with ultra-violet light.

Careful plant and laboratory controls and regular bio-assays give assurance that the vitamin D potency of Carnation Milk is always maintained at this approved and benificial level.

CARNATION COMPANY, LIMITED, TORONTO

Carnation



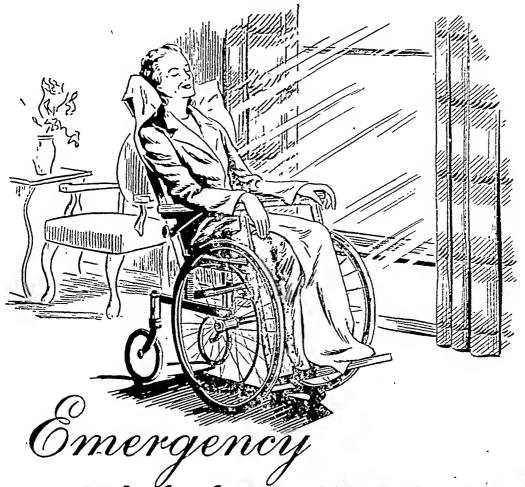
"FROM CONTENTED COWS"



Milk

A Canadian Product





Relief of ARTHRITIC PAIN

When the pain of arthritis becomes unbearable and other analgesics fail, emergency relief can readily be obtained with Demerol hydrochloride. In addition to subjective improvement, prolonged Demerol administration brings about changes in objective findings. In a published report of 256 cases, two outstanding measurable effects were relief of secondary muscle spasm and increased joint mobility. Ampuls (2 cc., 100 mg.); vials (30 cc., 50 mg./cc.); tablets (50 mg.); powder (15 Gm.) for prescription purposes.

DEMEROL HYDROCHLORIDE

Brand of meperidine hydrochloride (isonipecaine)

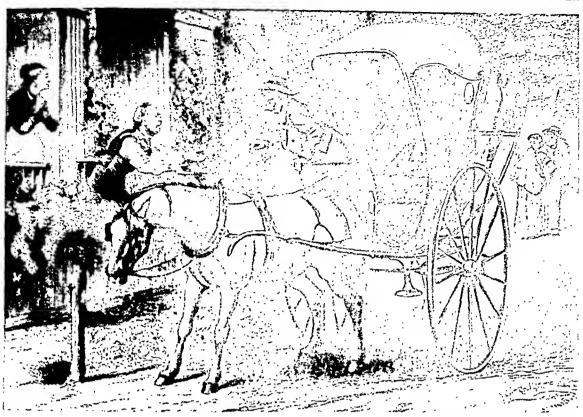
Narcotic blank required

Write for detailed literature

Winthrop CHEMICAL COMPANY, INC.

Pharmaceutials of merit for the physician
General offices: Windsor, Ontario
Quebec Professional Service Office: Dominion Square Building, Montreal, Quebec





"Emergency call of the country doctor." From an old steel engraving. The Bettmann Archive.

It's an old story with doctors ...

Eight cylinders have replaced Dobbin's four legs. Medical skill and knowledge are far greater. But this fact is as true today as it ever was: the only patient a doctor never has time for is himself.

How often have you, concerned about the welfare of someone else, shrugged off your own discomforts—such as annoying skin irritations?

Yet you—and thousands of members of the Medical Profession—recognize Noxzema's ability to help soothe many of the common skin irritations that other people complain about!

Doesn't it make good sense for you to take a few seconds out regularly... and let Noxzema look after your skin comfort, too?

1. Use medicated Noxzema for your face when it's irritated by exposure to bad weather. And use Noxzema for shaving, as a base for regular lather.

or as a brushless shave cream. It helps protect sensitive skin.

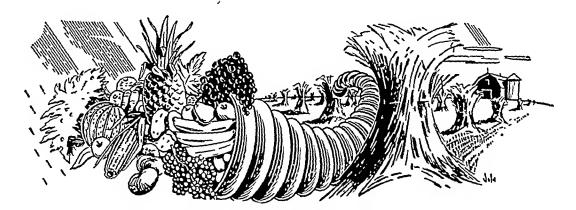
- 2. Use Noxzema for your hands when they're bothered by winter chapping or roughened and red from scrubbing. It's soothing—helps heal tiny cracks.
- 3. Use Noxzema for your feet when they're tired and burning after a hard day. It's greaseless, cooling, won't stain.

For Your Information

Regular Noxzema Skin Cream is a modernization of Carron Oil, fortified by adding Camphor, Menthol, Oil of Cloves and less than ½% of Phenol in a greaseless, solidified emulsion. Its reaction is almost neutral—the pH value being 7.4.

Where an antipyrotic and/or antipsoric is indicated, as in the case of painful skin irritations of various types—itching rashes and burns—mildly medicated greaseless Noxzema can be safely recommended and prescribed for your patients.

EVEN IN THIS LAND OF PLENTY...



THERE IS URGENT NEED FOR PROFESSIONAL GUIDANCE IN NUTRITION

DIETARY SUPPLEMENT

One capsule and one tablet constitute a single dose.

VITAMINS

MINERALS

each tablet contains

Ferrous Sulphate
Exsicated B.P.. 2.0 grains
Calcium Phosphate

Despite the wide range of 'protective' foods available, dietary fads, unwise self-selection, hastily prepared and irregular meals adversely affect the nutritional status of all age groups.

B.D.H.

When the daily diet for any variety of reasons fails to furnish the correct nutrients, the administration of Dietary Supplement B.D.H. will provide appropriate levels and proportions of those minerals and vitamins most frequently lacking in the 'ordinary mixed diet'.

Issued in cartons containing one bottle of 100 capsules and one bottle of 100 tablets.



THE BRITISH DRUG HOUSES

(CANADA) LIMITED

TORONTO

CANADA

CONTROL

at every step insures your confidence in every package of

PENICILLIN SCHENLEY



In the Schenley Laboratories, the natural process which yields penicillin is safeguarded at every step by precision control.

This system of rigid control which characterizes the production of Penicillin Schenley enables you to specify it with the greatest confidence... confidence in its purity, its standard potency, and its freedom-from-pyrogens.

SCHENLEY LABORATORIES, INC.

Producers of Penicillin Schenley

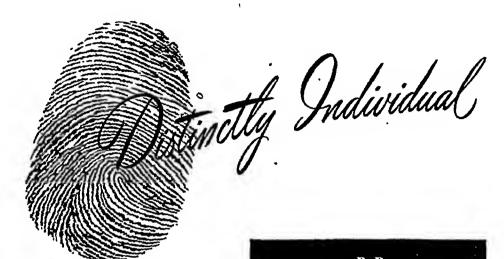
Executive Offices:
350 Fifth Avenue, New York City



Distributed in Canada exclusively by

INGRAMI & BIEILIL

TORONTO



B-P SURGICAL KNIFE HANDLES

Outstanding for their durable fabrication and capacity to accurately and firmly fit every B-P Blade, their combined qualities of practical design, balance and funds are as distinctly individual as

fingerprint.

Genuine B-P Handles may be readily distinguished by the Gothic Arch pattern of the distal ends... a time-conserving aid in blunt dissection. As quality products, they are built for long periods of satisfactory service... designed to resist the damaging effects of hard, constant use. In the end, more economical by far.

AVAILABLE PATTERNS INCLUDE-

Nos 3, 4 and 7 Nos 3L and 1L

For general surgical use. Elongated handles for deep surgery.

No 3LA

An offset, clongated handle for use in hysterectomies.

No. 9

A small, finely balanced handle for ophthalmic, plastic and minor surgical use

Ash your dealer

BARD-PARKER COMPANY, INC.

Danbury. Connecticut





Approach to
Normal Living for
the Chronic
Cardiac

Physicions know the dromotic results in respiratory failure through the use of Coramine intravenously. Of equal value in ambulotory patients with chronic cardiovosculor diseose is

CORAMINE

LIQUID This farm af Caramine is indicated where drastic action is not required, but where maintenance and progressive improvement are saught. Taken orally, Caramine Liquid enables the patient to move about freely and ta carry an maderate narmal activities with an easy mind—in itself an important factor in management af cardiac canditions.



ISSUED:

Liquid, far aral use—battles af 15, 45 and 100 c.c.

Far intravenous ar intramuscular use, ampoules of 1.5 c.c. cartans of 5,20 and 100 5 c.c.—cartons af 3 and 12

CIBA COMPANY LIMITED . MONTREAL



In treating Para-nasal Infection

Bacteriostatic Decongestion is the MEANS Restoring Normal Function is the GOAL

with ARGYROL

the Decongestant without Rebound Action

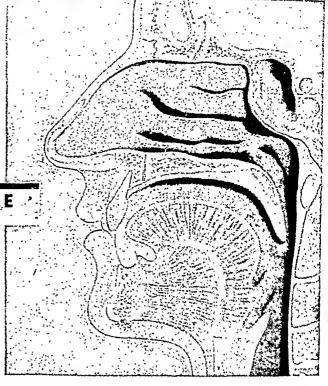
In recent literature emphasis is being given to the after effects that frequently follow use of vasoconstrictors because of their rebound action.

Such untoward results do not accompany the use of ARGYROL, the bacteriostatic decongestant that



When the physician uses ARGYROL he knows that he is contributing most to recovery through support of nature's own First Line of Defense.

The cleansing, demulcent, bacteriostatic action of ARGYROL is attained by its three-fold action.



Three-Fold Action of ARGYROL:

- 1. ARGYROL is decongestive, without irritation to the membrane, and without ciliary injury.
- 2. ARGYROL is powerfully bacteriostatic, yet is non-toxic to tissue.
- 3. ARGYROL stimulates secretion and cleanses, thereby enhancing Nature's own first line of defense.

Three-Fold Approach to Para-nasal Therapy:

- 1. The nasal meatus . . . by 20 per cent ARGYROL instillations through the nasolacrimal duct.
- 2. The nasal passages . . . with 10 per cent ARGYROL solution in drops.
- 3. The nasal cavities : : with 10 per cent ARGYROL by nasal tamponage.

ARGYROL the Physiologic
Anti-infective with broad, sustained action



HEPAROS

A HIGHLY CONCENTRATED

LIVER EXTRACT

WITH

AMINO ACIDS

FOR

EFFICIENT HEMATOPOIESIS

Box of 10 Ampoules for oral use only.

Directions: One Ampoule every day or every other day.

MADE BY THE

PIONEERS

IN

RESEARCH AND MANUFACTURE

OF

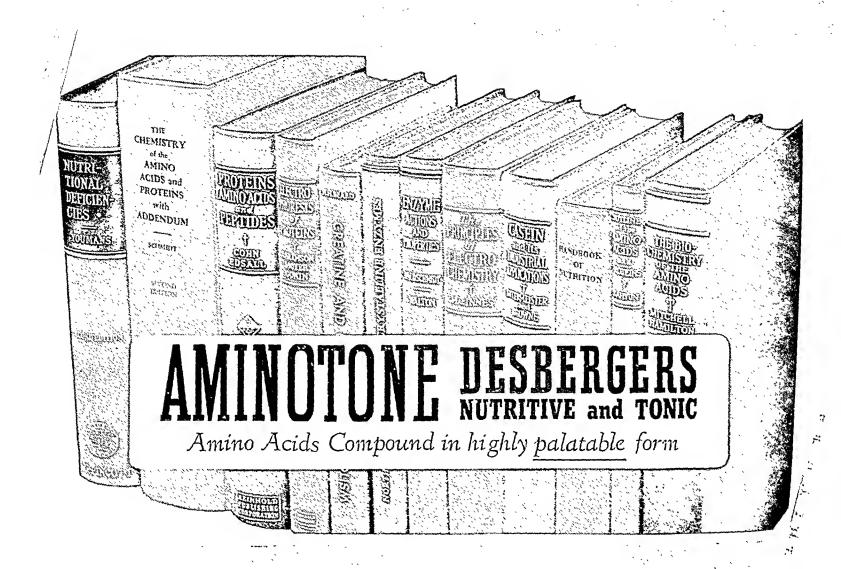
AMINO ACIDS

IN

CANADA

DESBERGERS LIMITED

(DESBERGERS - BISMOL LABORATORIES)



Each 100 c.c. contains:

AMINO ACIDS (with Tryptophan	e) 5	gm.
Thiamin HCI (Vit. B1)	18	mgm.
Riboflavin (Vit. B ₂)	7	mgm.
Sodium Glycerophosphate		gm.
Potassium Glycerophosphate		gm.
Calcium Glycerophosphate	2	gm.
Maltose, Dextrine and Dextrose		
Alcohol, by volume 19%		

INDICATIONS:

FORMULA AND DIRECTIONS:

General Debility, Nervous Exhaustion, Malnutrition, Convalescence

DOSE:

One dessertspoonful three or four times per day

Bottles of 12 ounces



to combat

persistent depression in

the aged patient

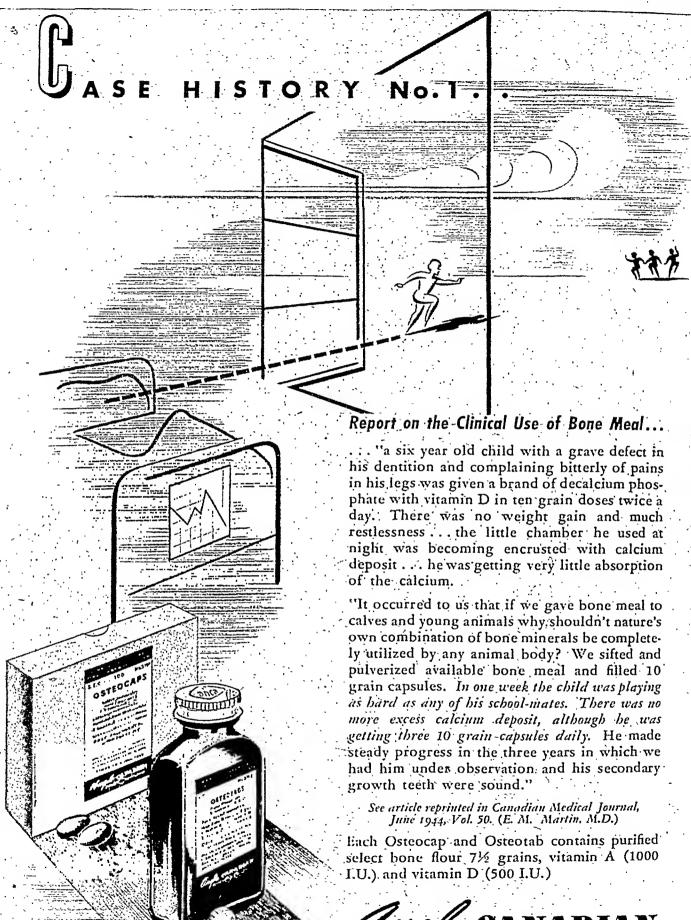
Old age sometimes brings a severe and lasting depression, marked by self-absorption, withdrawal from former interests and loss of capacity for pleasure. This depression often aggravates underlying pathology by interfering with exercise, appetite and sleep.

Because of its power to restore mental alertness and zest for living, Benzedrine Sulfate helps to overcome depression and anhedonia in the aged. Obviously, careful observation of the aged patient is desirable; and the physician will distinguish between the casual case of low spirits and a true and prolonged mental depression. The dosage should be adjusted to the individual case.



Smith, Kline & French Inter-American Corporation, Philadelphia and Montreal

Canadian Distributors: The Leeming Miles Co, Ltd., Montreal



Please write for clinical trial packages,
A reprint of this article is available on request

OSHAWA.

CANADA



DECONGESTIVE BUT NOT RE-CONGESTIVE

• Neo-Synephrine productive without compensator removed, Neo-Synephrine

aggravation of surpr.

p met and enduring nasal decongestion, which when the cause of congestion is

Neo-Synephrine

HYDROCHLORIDE

FOR NISAL DECONGESTION



of Canada, Ltd.

NEW YORK

KANSAS CITY • SAN FRANCISCO • DETROIT • SYDNEY, AUSTRALIA • AUCKLAND, NEW ZEALAND

EUDELLIEUNG-GEW TUGGER EDERLIE

PROMPT, prolonged nasal decongestion through local vasoconstriction following ropical application.

EQUALLY EFFECTIVE upon repeated

WELL TOLERATED locally, the solutions are isotonic and virtually non-

irritating to nasal mucosa.

CILIARY ACTION is not appreciably impeded.

RELATIVE FREEDOM from systemic effects, widens the range of usefulness for Neo-Synephrine—manifestations of central nervous system stimula-

tion are rarely observed.

INDICATED for symptomatic relief in the common cold, sinusitis, nasal manifestations of allergy, and similar conditions.

ADMINISTRATION may be by dropper, spray, or tampon.

THE CONTRACTOR OF THE WIFE STREET WILL SEE STREET WILL SEE STREET WITH SEED OF SECTIONS



Complete I Reft



SOUPS

Beef and Liver Soup Vegetable Soup. Tomato Soup

MEATS

Chicken, Vegetables and Farina Vegetables with Lamb

VEGETABLES

Asparagus

Carrots

Green Beans

Peas

Beets

Spinach

Peas and Carrots Squash and Carrots

DESSERTS

Applesauce

Apple, Prune Custard Dessert

· Apricots with Oatmeal

Peaches

Pears with Farina

Prunes

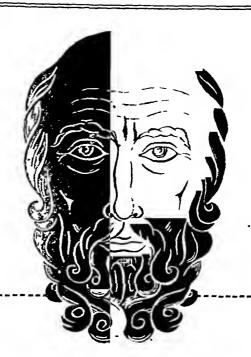
Plums with Farina

Orange Custard Dessert

Peach Custard Dessert

"Use Wax"

Said Hippocrates



And so his disciples did. Bandages "smeared with cerate (wax) and rosin" were used in treating fractures, and the practice persisted through the Middle Ages.



It's a Far Cry... from Hippocrates' crude dressings to today's efficient Curity Ostic Plaster Bandages and Splints. With the Ostic line, precise anatomic molding, controlled setting and more positive immobilization are possible in all types of casts.

Better, Quicker, Cheaper . . . The new hard-coated Ostic Plaster Bandages wet out in three to four seconds, set in about seven

minutes. Ninety per cent of the original plaster is delivered to the cast. Casts dry faster, too. You achieve greater final strength with fewer bandages, and save time because of speedy wetting out, setting and drying.

For stronger, speedier, less expensive casts of all types, rely on Curity Ostic Plaster Bandages and Splints.

CURITY OSTIC PLASTER LINE

Bandages - Splints

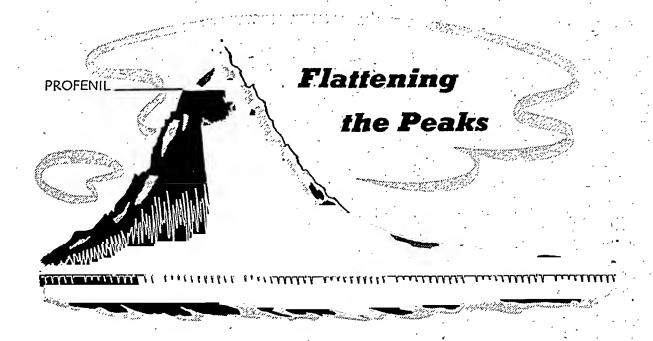
Products of

BAUER & BLACK

Division of The Kendall Company (Canada) Limited, Toronto, Ontario

RESEARCH TO IMPROVE TECHNIC...TO REDUCE COST





Clinical results with PROFENIL* in smooth muscle spasm parallel the findings in experimental studies.

Irrespective of the therapy employed in gastrointestinal or biliary disease, Profenil is suggested as a routine measure for the control of the associated spasm.

Tablets for oral use contain 0.06 Gm. of Profenil citrate.

Ampoules for parenteral use contain 0.045 Gm. of Profenil hydrochloride.

Suppositories for rectal use contain 0.048 Gm, and 0.024 Gm. of the base (Adult and Child).

*The Review of Gastroenterology. Vol. 12, Number 6, pages 436 439, Nov.-Dec. 1945.

*Medical Times. Vol. 74, Number 11, Pages 305-306-307 & 320, Nov. 1946.

Profemi
NEW SYNTHETIC
NON-NARCOTIC
Antispasmodic

(bis - gamma - phenyl - propylethylamine)



Collenburys ETHANOLAMINE MORRHUATE INJECTION SOLUTION

A 5% PREPARATION OF ETHANOLAMINE MORRHUATE

A SCLEROSING FLUID FOR THE TREATMENT OF VARICOSE VEINS



ETHANOLAMINE MORRHUATE combines the advantages of Allen & Hanburys' special Morrhuate product with the advantages of Ethanolamine.

Allen & Hanburys' research laboratory devised a process by which a fatty-acid (morrhuate) product of Cod Liver Oil is obtained, that has an íodine value over 300. This high figure shows that only the most highly unsaturated fatty-acids of Cod Liver Oil are present. (Ethanolamine Morrhuate therefore, is practically free from the more toxic oleate radicle).

ETHANOLAMINE is a weak, organic base and is believed to be entirely non-irritant, and incapable of damaging the perivascular tissues.

Available in boxes containing 12 ampoules, of 2 c.c. each and vials of 20 c.c. each.

Complete literature supplied on request.

THE ALLEN AND HANBURYS COMPANY LIMITED . LINDSAY, ONT. . LONDON, ENG.

Scraped BEEF

A New AYLMER Product

Normal Infants	When you want a well-tolerated beef protein which can be easily introduced into the normal baby's diet when ready for meat.
Special Cases	When you want best-quality, government-graded beef to prescribe for special diets—such as coeliacs or youngsters with indigestion.
Convalescent Children	When you want finely-strained beef, strained much finer than homescraping, which children recovering from illness or operation can digest easily.
Adult Patients	When you want specially cooked and prepared beef for adult patients suffering with anemia, ulcers, colitis—and convalescents from abdominal or oral operations.
Elderly People	When you want an easily-prepared, ready-to-serve beef dish, suitable for elderly patients with delicate digestive systems.

Doctors will find AYLMER SCRAPED BEEF superior—because it is strained much finer than home-scraping—and cooked at proper temperature with a small quantity of farina to absorb and retain the meat juices. Well tolerated. Economical—because it eliminates waste of beef steak in home preparation.



SCRAPED AND DEFATTED

BEEF
WITH FARINA SOUP

Government Graded Beef, defatted, scraped and strained, is cooked with a small quantity of farina to absorb and retain the natural juices of the meat. A trace of salt is added to enhance flavor.

FOR FREE SAMPLES . . . write Canadian Canners Ltd., Hamilton, Canada

The Analgesic for home use...



The Bayer Laboratories have specialized in the production of ASPIRIN for over forty-six years. Only the finest and purest ingredients are used in its manufacture. Every batch made is subjected to complete and rigid scientific controls. Seventy different tests and inspections have been developed to insure the quality. purity and uniformity of the finished product.

"ASPIRIN"



he medicinal cod liver oil industry in Canada started when war was declared in

1939. The government aided fishermen of the Atlantic seaboard



to set up clean modern



plants for the production of fine oil. The cod

livers are brought in fresh from the sea. Careful



assay of the oil proves

that it meets all requirements of B.P. and U.S.P. for vitamin A & D content. The

Canadian product is as good, and in some respects, superior to oil



imported before the war. The Canadian cod liver oil producers need the support

of physicians and the pharmaceutical companies, bottling cod liver oil, to keep

this new industry alive in peace time.

Atlantic Cod Liver Oil Producers' Association

The "NON-TOXIC" alkaloids

GENOSCOPOLAMINE

EXERTS REMARKABLE THERAPEUTIC EFFECTS ON

- The distressing stiffness
- The muscular hypotonus
- The excessive siglorrhæa

of PARKINSON'S DISEASE

Form	Size	. Dosage
Granules Drops	60 x ⅓ mg. 20 cc.	2 Granules three times daily. Average Dose: 20 drops (equalling 1 mg. Genoscopolamine) three times daily.

GENATROPINE

Polonovski and Nitzberg

CLINICAL RESULTS have proved the value of GENATROPINE in the treatment of

- TRAVEL SICKNESS
- INTESTINAL PAIN
- HYPER-ACID DYSPEPSIA PYLORIC STENOSIS

and all vagotonic disturbances

Form	Size	Dosage
Granules Drops	60 x ½ mg. 20 cc.	1 to 3 two or three times a day, two hours after meals. 10 to 30 drops (equalling ½ to 1½ mg. Genatropine) two or three
Ampoules	10 x 1 cc. x 2 mg.	times a day, 2 hours after meals. 1 to 3 Ampoules to be injected daily subcutaneously.

GENESERINE

Polonovski and Nitzberg

A VALUABLE SEDATIVE for troubles of the sympothetic system

- HYPO-ACIDITY, ATONIC DYSPEPSIA
- The solar syndrome
- **TACHYCARDIA**
- PALPITATION OF HYPER-EXCITABLE HEARTS

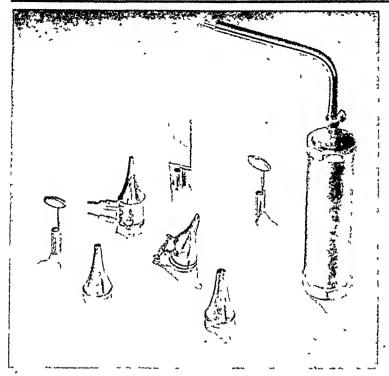
Form	Size	Dosage
Granules Drops	60 x ½ mg. 20 cc.	2 to 3 at each of the three principal meals. 20 to 30 drops (equalling 1 to 1½ mg. Geneserine) at each of the three principal meals.
Ampoules	10 x 1 cc. x 2 mg.	1 ampoule to be injected daily subcutaneously.

LABORATORIES AMIDO

Literature obtainable from:

VINANT Ltd., 200 Vallée Street, MONTREAL

Sole Agents for Canada



Made in England.

AVAILABLE FROM ALL SURGICAL INSTRUMENT DEALERS.

HE clean design, robust construction and untarnishable chromium-plated finish which characterize Gowlland Ear, Eye, Nose and Throat Instruments are well illustrated.

Your dealer will be able to supply Gowlland Instruments, although at present some delays in delivery are still occurring.



STOCKED STEVENS COMPANIES ВΥ BRANCHES THE OF

1847

CENTURY



1947

EXPERIENCE

ANAESTHETIC ETHER

(DUNCAN)

The choice of discriminating Anaesthetists

- **☆ BRITISH MADE**
- **☆ STABLE**
- **☆ RELIABLE**
- REQUIREMENTS ☆ MEETS ALL PHARMACOPOEIAL

MANUFACTURED BY DUNCAN, FLOCKHART & CO. EDINBURGH LONDON



Distributed in Canada exclusively by

INGIRAME & BIEILIL

MONTREAL . WINNIPEG . CALGARY . VANCOUVER



Yes, doctor, it's a fact. All formulæ used in preparation of Beauty Counselors cosmetics are always available to any member of the medical profession. You may have seen our national advertisements telling of the home beauty treatment of our organization. Your wife or your nurse may already be using our preparations for a smart, well-groomed appearance. But we want you to know the ingredients of our creams and lotions, so that you may confidently recommend them.

Beauty Counselors products are as non-allergenic as advanced science and skill can make them. All known allergens have been completely removed or minimized.

Please feel free to drop us a card at Windsor, Ontario, requesting our formulæ. They'll be sent to you by return mail. Your request will be treated confidentially. There is no obligation. Your name will not be used.

Beauty Competers of Canada, Limited Windson Canada



A "natural" aid in treating Constipation

In dietary treatment of constipation, Old York Cereal has proven of genuine value. Old York contains bran, flax, wheat and eorn, scientifically blended into a delicious non-heating, non-fattening cereal which provides bulk, roughage and natural oil for lubricating the digestive tract.

This laxative food gently and naturally rids the intestines of injurious waste.

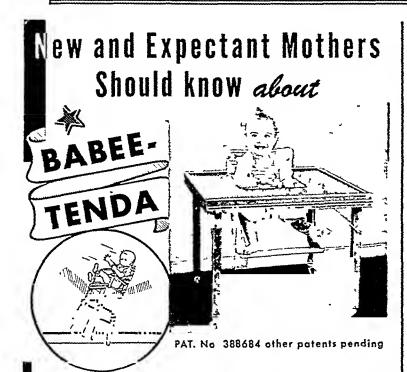
Delicious as a satisfying hot porridge, or made into date bread or muffins, according to directions on the package. Preferred by many users in its natural uncooked state.

Introductory Offer to Physicians

A generous sample of OLD YORK will gladly be sent to physicians wishing to test its efficacy.

DURUM CEREALS LTD. 858 Dupont St., Toronto





Thousands of Doctors and Nurses recommend the BABEE-TENDA Safety Chair because they know from actual experience that falls from high chairs can be serious and fatal to Baby. BABEE-TENDA cannot be pulled or tipped over because it is low and square, 22" high and 25" square. A Safety Halter Strap positively prevents. Baby from climbing out and mother can go about her work without fear for Baby's safety. The BABEE-TENDA Safety Chair is the first revolutionary improvement since the high chair. Very highly recommended by Baby Specialists because it protects Baby from SERIOUS FALLS. Specialists say that Baby should not be fed at the family table — there are too many

distractions that lead to emotional upsets and result in bad feeding

habits. Use the BABEE-TENDA Safety Chair to develop proper feeding

habits. Recommend to mothers for Babies at sitting up age.

The NEW Safety Chair that

PROTECTS Baby from SERIOUS FALLS

Copyright 1945 by The Babee-Tenda Corp. of Canada, Ltd.



DOORWAYS

Some of

BABEE-TENDA

advantages

over

high chairs





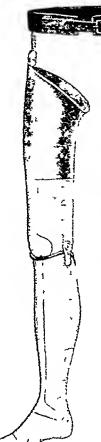
EASILY CHANGE



Sold only direct to you through authorized agents. Write for free instructive folders and name of nearest agent.

THE BABEE-TENDA CORPORATION OF CANADA, LIMITED 347 Bay Street Dept. CM Toronto 1, Ontario

ARTIFICIAL LIMBS



THE HANGER LIMB CO.

Established 1861

Specializing on light Dural Metal and English Willow Limbs worn without Shoulder Straps.

Improved and successful method in fitting short thigh stumps and hip disarticulations.

It is our policy to consult Surgeon before soliciting patient.

Special Service freely given to patients in preparing stump limb and personal training in the use of Hanger Limbs.

TRUSSES, BELTS, BRACES

Treatise on amputations.

Catalogue and demonstration given on request.

85 KING ST. WEST, TORONTO Phone EL. 5797

1409 CRESCENT ST., MONTREAL Phone LA. 9810

ARTHRITIS and ECZEMA of endogenous origin

claimed to be allergic, may be favored or induced by calcium and sulphur deficiency, impaired cell action, and imperfect elimination of toxic waste.

LYXANTHINE ASTIER

administered per os, brings about improved cell nutrition and activity, increased elimination, resulting symptom relief, and general functional improvement.

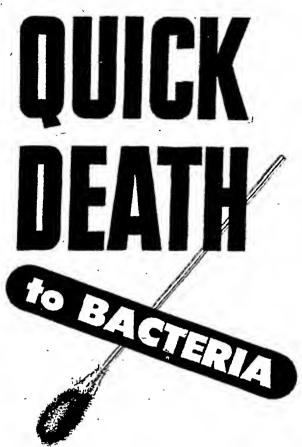
Write for information

L-1

Canadian Distributors

ROUGIER FRERES

350 Le Moyne Street, Montreal



Rapid killing of bacteria is one of Iodine's outstanding characteristics.

Many investigators and prominent surgeons and scientists are quoted by Gershenfeld and Patterson in the American Journal of Pharmacy (January 1945). They point out that for four decades, Iodine has been prominently in the foreground as an antiseptic of choice for use as a skin disinfectant, particularly for the treatment of minor injuries and in preoperative surgical procedures.

In addition to its remarkable antiseptic and fungicidal action, Iodine and its compounds serve the medical profession in many ways.

Its necessity in the prevention of goiter and its usefulness as an adjunct in the reabsorption of granulomatous lesions are important contributions in the fields of Prevention and Therapy.

Moreover, the value of organic iodine compounds as radio-opaque substances makes Iodine exceptionally useful in certain diagnostic procedures.



OF SERVICE TO MEDICINE
FOR PREVENTION • DIAGNOSIS • THERAPY

10DINE EDUCATIONAL BUREAU, INC.
120 Broadway, New York 5, N. Y.

BRAN:

an excellent source of dietary iron

RELATIVELY few foods—and no other cereal—provide such a rich supply of dietary iron as does wheat bran—from which Kellogg's ALL-BRAN is made.

In fact, just one ounce of ALL-BRAN contributes more than 1/3 of the average adult's daily iron requirement.

Biological evidence, moreover, indicates that the form of the iron content of ALL-BRAN is favorable to rapid hemoglobin regeneration in cases of nutritional anemia caused by lack of dietary iron.*

Furthermore, menu tolerance for this palatable cereal is extremely high. ALL-BRAN can be served in a wide variety of food combinations: as a daily breakfast cereal; in muffins, as a meat extender; and as an ingredient in many other appetizing foods. Thus Kellogg's ALL-BRAN can be freely included in the diet without fear of creating monotony.

One ounce of Kellogg's All-Bran contains:

IRON				3.3	mg
CALCIUM				28.9	mg
PHOSPHOR	US			370.	mg.
COPPER :	-			0.45	
THIAMINE					mg.
NIACIN .				6.	mg.
PROTEIN				3.7	gm.
CALORIES				95	

The Kellogg Company will be pleased to send reprints covering research from which the above conclusions have been summarized.

TO 1 1 1 1 4 -	
Please indicate if you wish to receive informa- tion on any of the subjects listed below, or one	
of the new Diet List Manuals.	
1. Experimental Evidence of Biological	
Availability of Iron in Bran	
2. Digestibility of Cellulose Fiber of Vari-	
ous Vegetable Foods	•
3. Clinical Studies of Bran in Laxation	
4. Mode of Action of ALL-BRAN in Laxa-	
tion	
5. ALL-BRAN and Intestinal Flora	,
6. New Diet Manual and Diet Lists	
N	,
Name	'
Street	3
,	
City Prov.	(
(Mail to Kellagg Company, London, Ontaria, Canada)	
,	

*Rose, Valleich, and McLeod: Factors in Food Influencing Hemoglobin Regeneration. Jour. Biol. Chemistry, Vol. 104, No. 2.

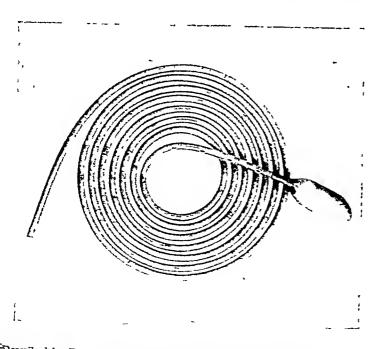


IODEX

MENLEY & JAMES Ltd. 420 LAGAUCHETIERE St. West Montreal Canada.

A simplified tube for

INTESTINAL INTUBATION . . . The CANTOR TUBE -



ecribed by Dr. Meyer O Cantor, Detroit, American Journal of urgery, July 1946; and in other articles soon to be published in American Journal of Surgery.

Order from your Surgical Supply Dealer

The CANTOR TUBE is a latex bag-tipped, mercury weighted, single lumen tube. It is 18 Fr. and 10 feet long. Its movement down the alimentary tract is actuated by a combination of free-flowing qualities of the mercury and the peristaltic action on the bolus formed by the mercury in the bag. Mercury is given the maximum motility by the loose latex bag attached distal to the tube. It is the only tube utilizing all the physical properties of mercury. Tubes are marked as follows to indicate their position: "S" for stomach at the 17" mark, "P" for pylorus at the 24" mark, "D" for duodenum at the 30" mark, then in feet at the 4, 5, 6, 7, 8 and 9 feet marks.

Secondary dilatation of the stomach can be decompressed by with-drawing the tube a short distance, cutting holes into the tube, and allowing the tube to be pulled down by peristalsis at which point the holes will open to the stomach which, on applying suction, will be decompressed

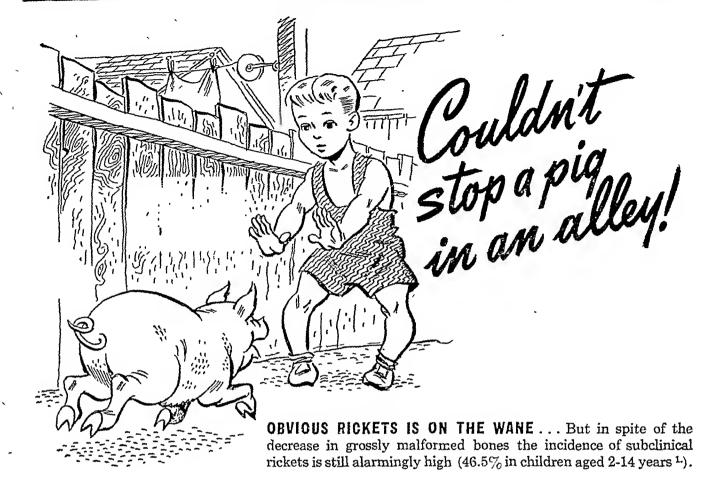
Replacement latex bags are easily cemented to the tube.

FEATURES . .

- 1. Greater ease of intubation—first, ease of passage through the nares and nasopharynx; and second, ease of passage through the pylorus Of 100 cases 96% were successfully applicated. intubated.
- 2. More efficient decompression—resulting from larger luminal diameter and less possibility of plugging.
- Complete absence of any metal parts which might injure the mucosa
- D-110 CANTOR INTESTINAL DECOMPRESSION TUBE, 18 Fr., 10 feet long, with bag attached, with instructions for use.
- D-110/B LATEX BAG for Cantor Intestinal Decompression Tube with instructions for replacement of hag (With each dozen hags one tube of D-110/C Cement is supplied without

D-110/C RUBBER CEMENT for attaching replacement bags to the Cantor Tube

44 EAST 23rd STREET, NEW YORK 10, N. Y.



DENTAL CARIES IS NOT ON THE WANE...
But the significance of fluorine in relation to dental health has become well established and the prospect looks bright for the coming generation.

FLUORINE... Orical E.B.S. contains 1/80 grain of Fluorine in each tablet.

PALATABLE . . . Orical E.B.S. has taste appeal for youngsters.

Contents of Orical Tablets . . .

5 gr. BONE MEAL Calcium ... 25% Fluorine . 0.25%

Phosphorus 11%

VITAMIN D 400 Int. Units

THE E.B. SHUTTLEWORTH CHEMICAL CO., LTD. 525 LOGAN AVENUE, TORONTO 6

A wholly Canadian Company
ESTABLISHED 1879

ORIGAL E.B.S. IS RICH IN CALCIUM, PHOSPHORUS AND VITAMIN D, ALL NECESSARY FOR ADEQUATE BONE NUTRITION

Please note: We have discontinued selling this preparation under the name "Calfos" in view of possible confusion with a trademark used by another manufacturer. There has, however, been no change in the character or quality of our preparation now offered under the name "C.T. No. 175 Orical E.B.S."





The mythical Achilles had but one vulnerable spot, but the pregnant woman is systemically vulnerable—vulnerable to deficiencies in calcium, phosphorus and vitamin D. When pregnant women neglect or refuse a balanced diet, their

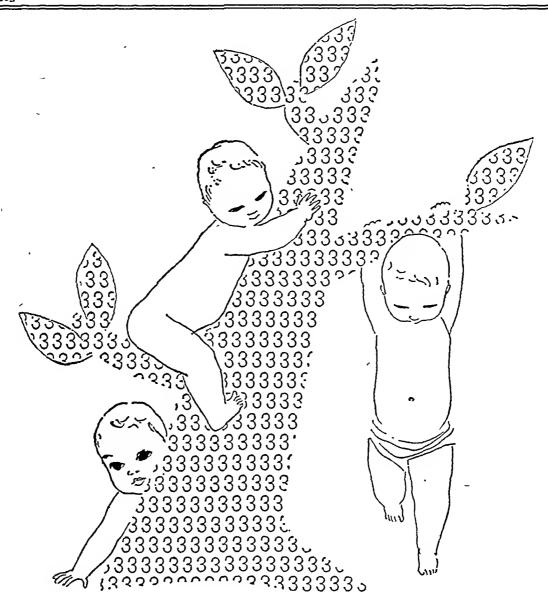
babies, as well as they, are the losers.

Protection in regard to these elements can be simply conferred when SQUIBB Dicalcium Phosphate with Viosterol (2 capsules, 3 times daily) is added to the average diet.

For literature write: E. R. Squibb & Sons of Canada Limited, 36-48 Caledonia Road, Toronto.



E. R. SQUIBB & SONS OF CANADA LTD., 36-48 CALEDONIA ROAD, TORONTO



babies grow on threes...

From infancy through late childhood, the average dose of Navitol with Viosterol is only three drops daily. This modern three-drop dose assures antirachitic protection for the normal child throughout the active growth period.

The maximum potencies of concentrated Oleo-

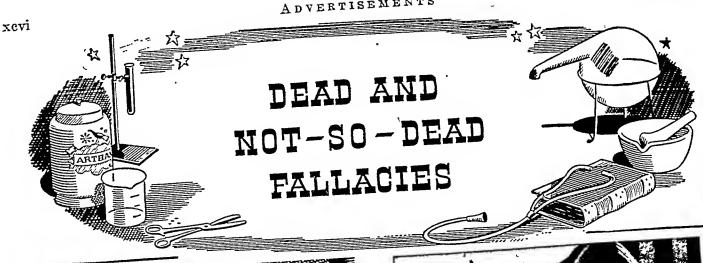
For literature write:
- E. R. Squibb & Sons of Canada Limited
36-48 Caledonia Road, Toronto,

SQUIBB

vitamin A and D specified in U.S.P.XII—5000 U.S.P. units of vitamin A and 1000 U.S.P. units of vitamin D—are supplied in three drops. So palatable, Navitol can be placed right on the baby's tongue. if desired. So nearly odorless, it is an instant hit with mothers. And economical! The three-drop dose costs only half a cent a day!

TRADEMARK
WITH VIOSTEROL

EDO





Pregnant stones, or "pietre gravide," were once considered by Italian peasants as an indispensable aid to normal childbirth.

The stones were worn for nine months. Then, after the birth of the child, the stones were passed along to another prospective mother.



Some people still believe that canned foods must be cooked.

This, of course, is not so-for in the canning process, foods are cooked thoroughly.

Canned foods need only to be heated and seasoned to individual liking.

AMERICAN HAMILTON MONTREAL

CAN TORONTO

COMPANY VANCOUVER

Now available on request —

"THE CANNED FOOD REFERENCE MANUAL"

—a handy source of valuable dietary information. Please fill in and mail the attached coupon.

Canned Food is Grand Food



AMERICAN	CAN	COMPANY	•	•	_
AMERICAN Medical Arts	_ 1.71	a Hamilton	ι, '	on	ι.
aradion1 Arts	Bungin	g, 11411111			
Aleurear 222 ve		•			

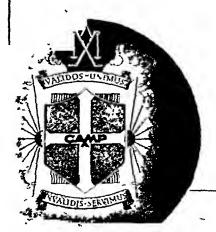
Please send me the new Canadian edition of "THE CANNED FOOD REPERENCE MANUAL," which is free.

Name..... Professional Title..... Address

.....Province.....

ETHICS

dation of the doctor.



There can be no middle caurse between the ethics of the medical profession and the temptations of the market place in the field of anatomical supports. Here the standards of the businessman must be elevated to the standards of the dactor because the custamer af the businessman is the patient of the dactar. Anything else is "merchandising quackery." We at Camp have far many decades cantralled aur distribution throughout the recognized retail institutions which like the doctor have earned the respect and confidence af their hame communities. No appeal is used in aur advertising approach to the consumer which fails to meet the precepts of the profession. We serve the physician and surgeon by living up to aur chosen function of supplying scientific supports of the finest quality in full variety at prices based an intrinsic value. We try to insure the precise filling at prescriptions through the regular education and training of fitters. In caoperation with medical and educational public health authorities we play the role our resaurces permit in pramoting better posture and body mechanics. That is aur idea of the practical ethical standards which permit the businessman to salicit the recommen-

Camp Anatomical Supports have met the exacting
test of the profession for four
decades. Prescribed and recommended in many types for prenatal, postratal, postoperative, pendulous abdomen, visceroptosis, nephroptosis, hernia, orthopedic and
other conditions. If you do not have a copy of the
Camp "Reference Book for Physicians and Surgeons",
it will be sent upon request.

CAMP ANATOMICAL SUPPORTS

S. H. CAMP & COMPANY OF CANADA, LTD.

**Manufacturers, Windsor, Ontario, Canada World's Largest Manufacturers of Scientific Supports

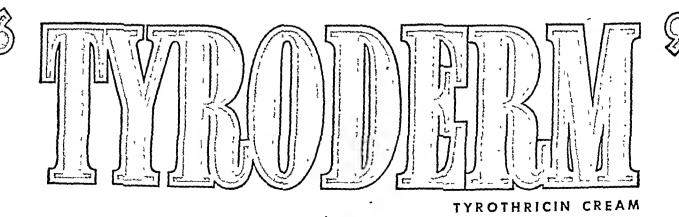
Offices at 19 HANOVER SQUARE, LONDON, W. 1, ENGLAND ** JACKSON, MICHIGAN 200 MADISON AVENUE, NEW YORK CITY ** MERCHANDISE MART, CHICAGO, ILL.

stable tyrothricin

in ointment form!

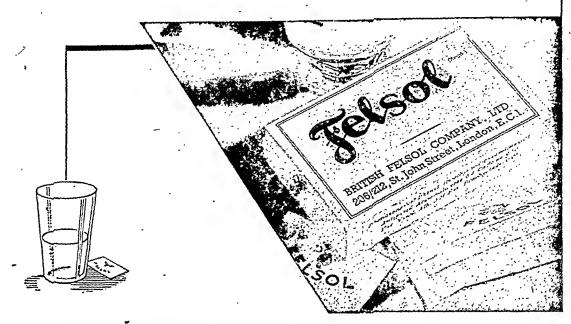


'TYRODERM' Tyrothricin Cream is particularly designed for treatment of a variety of skin infections. Developed by the Medical Research Division of Sharp & Dohme, it contains 0.5 mg. (500 micrograms) of stable tyrothricin per gram in a special emollient base. • The tyrothricin present in 'TYRODERM' Tyrothricin Cream is stable . . . exhibits approximately the same range of bacterial specificity as penicillin . . . remains in contact with site of application for a prolonged period of time . . . acts promptly. • 'TYRODERM' Tyrothricin Cream is indicated in the treatment of pyodermatoses such as acne vulgaris, impetigo, dermatitis vegetans, infectious eczematoid dermatitis, and other dermatoses caused by gram-positive organisms. It is also useful in the treatment of varicose, decubital and ischemic ulcers, selected accessible postsurgical wounds, and minor second and third degree burns . . . Sharp & Dohme (Canada), Ltd., Toronto 5, Ont.



Supplied in 1-oz. tubes and 1-lb. jars,

PROPHYLAXIS OF ASTHMATIC ATTACKS



"FELSOL POWDERS offer a remedy in Asthma well adapted for the prophylaxis of cases. With relief of broncho-spasm an attack is abolished and with prevention of spasm Asthma is avoided.

"When taken in time FELSOL will modify very considerably an impending attack of Asthma-

"Without morphia or other narcotic FELSOL achieves relief with perfect safety even in cardiac cases.

"Careful graduation of dosage in early cases of ASTHMA yields a high percentage of successful results—prevention of spasm abolishes the tendency in early cases."

Physicians' samples and literature available on request to Sole distributors for Canada:



THE ANGLO-FRENCH DRUG COMPANY, 209, ST. CATHERINE STREET EAST, MONTREAL

BRITISH FELSOL COMPANY LTD., 206/212 St. John St., London, E.C.I.

Telegrams: Felsel

It <u>Can</u> Happen Here

Lest we forget—we who are of the vitamin Dera—severe rickets is not yet eradicated, and moderate and mild rickets are still prevalent. Here is a white child, supposedly well fed, if judged by weight alone, a farm child apparently living out of doors

a good deal. This boy was reared in a section having a latitude between 37° and 42°, where the average amount of fall and winter sunshine is greater than that in the major portion of Canada. And yet such stigmata of rickets as genu varum and the quadratic head are plain evidence that rickets does occur under these conditions.

How much more likely, then, that rickets will develop among-city-bred children who live under a smokepall for a large part of each year. True, vitamin D is more or less routinely prescribed nowadays for infants. But is the antiricketic routinely administered in the home? Does the child refuse it? Is it given in some unstandardized form, purchased from a false sense of economy because the physician did not specify the kind?

A uniformly potent source of vitamin D such as Oleum Percomorphum, administered regularly in proper dosage, can do more than protect against the gross visible deformities of rickets. It may prevent hidden but nonetheless serious malformations of the chest and the pelvis and will aid in promoting good dentition. Because the dosage is measured in *drops*, Oleum Percomorphum is well taken and well tolerated by infants and growing children.



Example of severe rickets in a sunny clime.

Oleum Percomorphum 50% is now known as Oleum Percomorphum with other Fish Liver Oils and Viosterol. The potency remains the same; namely, 60,000 vitamin A units and 8,500 vitamin D units per gram. It consists of the liver oils of percomorph fishes, viosterol, and fish liver oils, a source of vitamins A and D in which not more than 50% of the vitamin D content is furnished by viosterol.

Supplied in 10 c.c. and 50 c.c. bottles; and as capsules in bottles containing 50 and 250.

MEAD JOHNSON & CO. OF CANADA, LTD., Belleville, Ont.

Please enclose professional card when requesting samples of Mead Johnson products to co-operate in preventing their reaching unauthorized persons

The Canadian' Medical Association Journal

Vol. 56	JUNE	, 1947	No. 6
	Con	tents	
	Page	•	Page
INDEX	. 1	CASE REPORTS	- ugo
GLOBIN INSULIN.			
I. M. Rabinowitch, A. F. Fowler, E. H. Be	nslev	RUPTURED CHORIONEPITHELIOMA.	
A. L. Gordon and M. Mountford	595	W. O. Stevenson	
LATIN AND THE METRIC SYSTEM IN			
PRESCRIPTION WRITING.		F. L. Skinner	. 659
R. A. Waud		CYSTIC DISEASE OF THE LIVER.	
ANASTOMOSIS BETWEEN CORONARY VESS	SELS	M. E. HOBBS	. 659
AND INTERNAL MAMMARY ARTERY.		TRACHEOBRONCHIAL DIPHTHERIA.	
A. M. Vineberg and B. L. Jewett	609	J. D. Balfour and N. J. England	. 661
MALIGNANT LYMPHOMA.		MUCOSAL RESPIRATORY SYNDROME.	200
D. E. H. Cleveland	614	J. F. Meakins	. 663
TREATMENT DURING THE MENOPAUSE.		SPECIAL ARTICLE	
M. C. Watson	620		
CLOSED PNEUMONOLYSIS.		A NATIONAL SCHEME FOR TREATMENT OF RHEUMATIC DISEASE IN BRITAIN.	
G. A. P. Hurley		H. S. Robinson	. 665
GALVANIC STIMULATION AND LIMB VOLU			,
J. E. Bateman		CLINICAL AND LABORATORY NOTES	S
INTESTINAL PARASITES IN HONG-KONG P.		SHORT WAVE DIATHERMY EQUIPMENT	
T. H. Williams			
PLEURAL EFFUSIONS AND TUBERCULOSIS.		EDÌTORIAL	
J. F. Paterson	634	SHORTAGE OF NURSES	. 669
SOCIAL THERAPY OF EPILEPSY.		NEW COURSE IN HOSPITAL ADMINISTRATION	N 670
W. G. Lennox	638	NECESSITY FOR PRESCRIPTIONS	. 671
CULTURAL STUDY OF RINGWORM.			671
C. W. E. Danby and R. Forsey AEROSOL THERAPY.	641	Association Notes	
M. Aronovitch	643	Miscellany	. 686
CHALLENGE OF THE YOUNG CHILD.	643	Canadian Medical War Services	
D. V. Hutton	646	Special Correspondence	
CONTROL OF RESPIRATORY INFECTIONS		Obituaries.	694
F. S. Brien	650	News	695
NON-RENAL HYPERTENSION.	655	Obituaries News Book Reviews Luder to Advertisements	000

Published Monthly by THE CANADIAN MEDICAL ASSOCIATION, 3640 University Streets Montreal [COPYRIGHTED] [PRICE SEVENTY-FIVE CENTS PER COPY] Printed in Canada by MURRAY PRINTING COMPANY, LIMITED, 192 SPADINA AVENUE, TORONTO 2-B

A NEW Book in Answer to a Widespread Need

KRACKE — COLOR ATLAS

with Brief Clinical Descriptions of Various Diseases by Roy R. Kracke, M.D.

Index to Advertisements



S. M. Friedman and C. L. Friedman .

Dean and Professor of Clinical Medicine, Medical College of Alabama

Thirty-two full color illustrations of the blood cells clearly illuminate, with time-saving clarity, minor variations in diseases . . . covers virtually every known blood disease . . . an excellent chapter on blood parasites, including malarial parasites, and the newest material on the Rh factor, are outstanding features. . . . Designed for general practitioners, laboratory technicians and medical students. . . . This working manual provides a wealth of painstakingly culled, profusely illustrated, specialized information never before found in an American book on this subject.

204 Pages 32 Plates in Pull Color 3 in Black and White

J. B. LIPPINCOTT COMPANY, Medical Arts Building, MONTREAL 25, P.Q.

1897...LIPPINCOTT'S 50TH CANADIAN ANNIVERSARY...1947



In treating RHEUMATISM the Salicylates are indicated but usually they are not well tolerated.

SALISAN POWDER

is well tolerated and though highly buffered does not produce hyperactivity of the acid-producing glands.

SALISAN POWDER is free from the "Salicylate Taste".

It is permanently stable. Its extremely fine state of subdivision ensures its immediate suspension in water or milk.

Each heaping teaspoonful of SALISAN POWDER contains the equivalent of 10 grains Sodium Salicylate.

SALISAN POWDER is supplied in 3 oz. containers.

SYNTHETIC DRUG COMPANY LIMITED

243 College St., Toronto

Phone Midway 8055

ABSTRACTS OF WORLD MEDICINE

Published monthly £3.3.0 pa.

ABSTRACTS OF WORLD SURGERY OBSTETRICS AND GYNAECOLOGY

Published monthly £2.2.0 p.a.:

FIRST PUBLISHED JANUARY 1947

Published by the B.M.A. and conducted under the general direction of The Editor of the British Medical Journal.

Subscriptions to Publishing Manager

British Medical Association, B.M.A. House

Tavistock Square, London, W.C.1

FIRST IN CANADA

Poulenc presents aminothiazole therapy

with

BASANTINE

(2921 RP)

a new antithyroid substance in the form of acid maleate of 2-aminothiazole

Indications

Graves - Basedow's Disease Preoperative Treatment of Thyrotoxicosis

Presentation

Bottles of 100 tablets containing each 0.1 Gm. of aminothiazole

Documentation on Request

Laboratory Poulenc Frères

protective CALCIUM with VITAMINS

Procal sugar coated tablets supply Calcium Phosphate of selected Bone Meal origin plus necessary Vitamins. This natural Calcium Phosphate is more readily assimilated than inorganic forms.

rocal has been specially prepared to adequately provide for the untoward demands during pregnancy and lactation er Calcium, Phosphorus and Vitamin D. aminis B1, B2 and C are included as ood supplements. Sugar coated to eliminate adverse oral reaction.

Procal is indicated in the growing period of life. Assimilated Calcium overcomes: poor or delayed dentition — Undeveloped or soft finger and toe nails — So called growing pains Night terrors and nervousness — Malnutrition and lack of weight gain — Rickets or theatened rickets.

Formula:

Each tablet contains:

Bone Meal-(Natural-Calcium Phosphate 3 grs.) 9 grs. Vitamin D 300 * Thiamine Hcl. (Vitamin B₁) Riboflavin (Vitamin B₂) Units Ascorbic Acid (Vitamin C)

Directions:

Two dables morning and evening or of prescribed by the physician.



Mowatt & Moore Ltd

We Suggest for Children B. M. Discs

Each palatable saccarated disc supplies 71/2 grains of specially selected edible bone meal plus 500 I. U. Vitamin D, .5 mgs. Thiamine Hcl. and .5 mgs. Riboflavin. Directions: Two discs per day - to be chewed.



IN THE DICTIONARY

"ORIGINAL" says the dictionary, is "that from which anything is copied; to bring into being, as, he originated the idea".

"PIONEER" says the dictionary is, "one who is first in experiments or exploration".

IN AUTHORITATIVE SCIENTIFIC WORKS

DIGITALINE NATIVELLE...THE ORI-GINAL PIONEER brand of DIGITOXIN was first isolated by Claude A. Nativelle in the year of Eighteen Hundred and Sixty Eight and to this day as recorded on July 25th Nineteen Hundred and Forty Two in the Annual Phy. of Chemistry of the A.M.A. as the only precise determination of digitalis activity by weight, etc., etc.

ROUGIER • FRÈRES INC.

CANADIAN DISTRIBUTORS . 350 LEMOYNE ST. . MONTREAL, CANADA

STREPTOMYCIN

in

Urinary Tract Infections

STREPTOMYCIN is frequently very effective in controlling infections caused by the gram-negative bacteria, Proteus vulgaris, Aerobacter aerogenes (B. lactis aerogenes), Klebsiella pucumoniae (Friedlander's bacillus), and Escherichia coli, which often infect the urinary tract. More resistant bacteria are Pseudomonas aeruginosa (B. pyocyaneus), Salmonella, and Streptococcus faecalis.

Streptomycin provides a new and potent weapon to control urinary complications which have hitherto not responded to antiseptics and other antibiotics. Elimination of the accompanying chills, fever, pyuria and the urea-splitting organisms, which are largely responsible for the formation of calculi in urinary infections, opens an entirely new vista in the treatment of these cases.

Although Streptomycin is a valuable adjuvant in the treatment of urinary tract infections caused by susceptible organisms, it should be emphasized that the principles of sound urological and surgical practice remain unchanged, and no amount of streptomycin can replace adequate surgical drainage and the elimination of infective foci.

A free flow of urine is essential to the permanent eradication of infection. If the urinary tract be obstructed by foreign bodies, such as calculi or indwelling eatheters, or by bladder neck obstruction, clinical improvement will usually be temporary and streptomycin-fast strains of the pathogen may develop.



DOSAGE

1 to 3 grams daily by intramuscular injection in divided doses of 125 to 375 mg, every 3 hours for 5 to 7 days, depending upon clinical response. In severe, fulminating infections of the urinary tract, especially with concomitant bacteremia, larger doses of streptomycin may be required, i.e. from 2 to 4 grams daily.

STREPTOMYCIN' MERCK

HYDROCHLORIDE
MADE IN CANADA

MERCK & CO. LIMITED

Manufacturing Chemists

MONTREAL . TORONTO . VALLEYFIELD



*"Calcium-Sandoz"

(calcium-glucono-galacto-gluconate)

often gives dramatic relief in the treatment of estival ills

INSECT BITES - CONTACT DERMATITIS - HAY FEVER

Wasp, Hornet and Bee Stings

Dermatitis venenata — Poison Ivy

Granules — Chocolate and Effervescent Tablets — Ampoules.

"Calcibronat-Sandoz"

(calcium-bromide-lactobionate)

is most effective in Itching Dermatoses

URTICARIA - PRURIGO - DERMATITIS - ECZEMA

Penicillin Reaction and Allergic Reactions

Granules — Effervescent Tablets — Ampoules

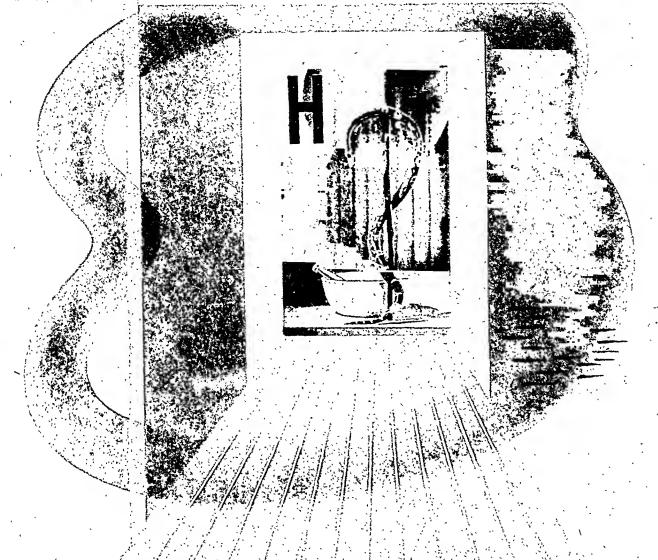
LITERATURE AND SAMPLES ON REQUEST.



Sandoz Pharmaceutical Dept.

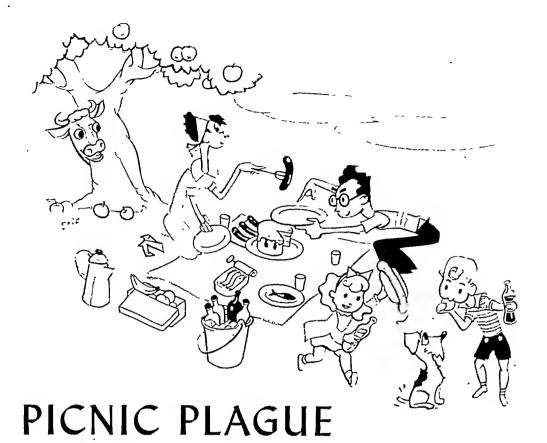
The WINGATE CHEMICAL CO. LTD

378 St. Paul Street West Montreal SCIENCE AT THE SERVICE OF MEDICINE



W. HORNER L MONTREAL CANADA







6 AND 12 FL. OZ. BOTTLES

DIARRHEA DUE TO FOOD CONTAMINATION, excessive heat, vacation indulgences or change of drinking water is quickly controlled by Kaomagma.

AT THE ONSET give 2 tablespoonfuls in a little water

... FOLLOWED BY 1 tablespoonful after every bowel movement.

FOR PROMPT RELIEF FROM DIARRHEA

KAOMAGMA

Kaolin in Alumina Gel



CLEANSES • COATS • PROTECTS • SOOTHES

JOHN WYETH & BROTHER (CANADA) LIMITED

WALKERVILLE, ONTARIO

AN **EFFECTIVE** TREATMENT FOR DERMATOPHYTOSIS

Sopronol is effective, yet mild. It is not only an efficient fungistat, but is practically nonirritating and nonsensitizing. The active agent is propionic acid—an ingredient of human sweat—nature's own defense against fungous infection.



And daily dusting with Sopronol Powder will destroy fungi lurking in socks and shoes.

FORMS... 3 USES

SOLUTION 2 oz. bottles

OINTMENT
1 oz. tubes

POWDER 2 oz. tins

Convenient for office treatment

For application at bedtime

For daytime use, and for prophylaxis

Solution and ointment contain sodium propionate 16.4% and propionic acid 3.6%. Powder contains calcium propionate 15% and zinc propionate 5%.

SOPRONOL





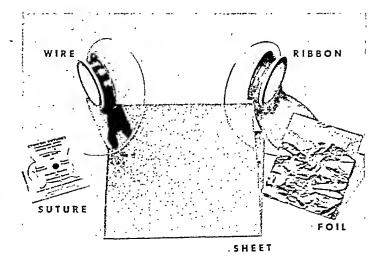
TANTALUM in Traumatic Surgery

A SURGEON'S REPORT "I have used tantalum wire suture material on all our hand injury cases for the past year and have a large series of them to look back upon.

"I have used the tantalum wire for both buried and cutaneous suturing. In this fairly large series of cases I have not yet seen any evidence of anything but minimal tissue reaction.

"I have not yet had a single infection in any of the cases where tantalum wire was used in these hand cases, which, to me, is quite remarkable because I are sure you will appreciate how difficult it is to obtain bacterial and physical cleanliness in working with the hand of the factory worker.*"

*Olson, C.T.: "The Place of Tantalum in Surgery," Industrial Medicine, 13:917, November, 1944.



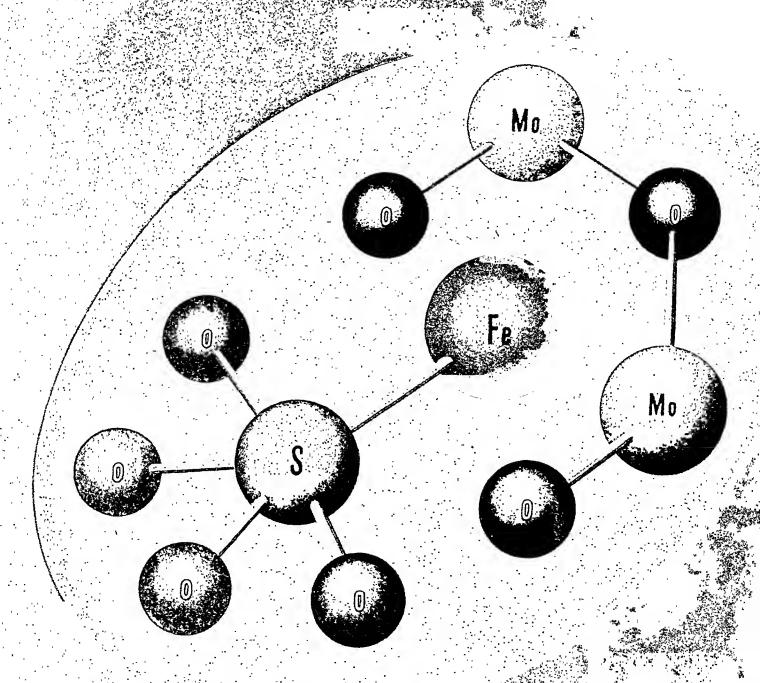






THE E.B. SHUTTLEWORTH CHEMICAL CO., LTD. TORONTO, CANADA

demonsirebly.



TARRITES

LABORATORIES OF CANADA, LTB., 64-66

Street, East, Toronto,

HERIUS

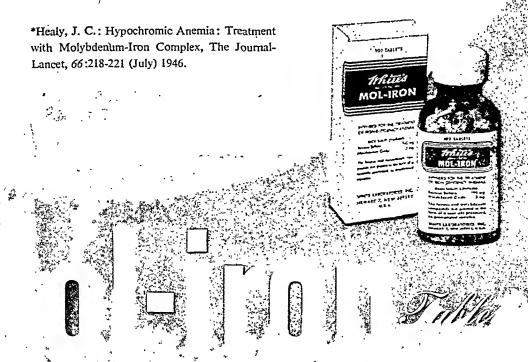
Studies of clinical hypochromic anemia treated with molybdenized ferrous sulfate (Mol-Iron) reveal the therapeutic superiority of this form of medication over ferrous sulfate alone in equivalent dosages:

QUICK RESULTS—Normal hemoglobin values are restored more rapidly, increases in the rate of hemoglobin formation being as great as 100% or more in patients studied.

COMPLETE UTILIZATION—Iron utilization is similarly more complete.

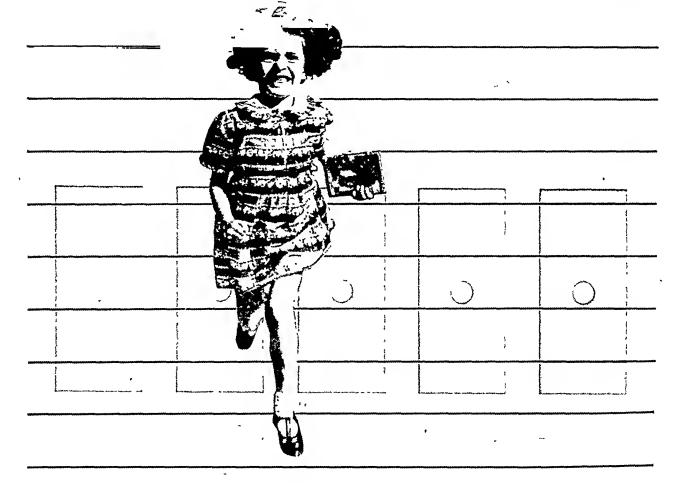
BETTER TOLERATED—Gastrointestinal tolerance is excellent—even among patients who have previously shown marked gastrointestinal reactions following oral administration of other iron preparations.*

White's Mol-Iron is a specially processed, co-precipitated complex of molybdenum oxide 3 mg. (1/20 gr.) and ferrous sulfate 195 mg. (3 gr.). Bottles of 100 and 1000 tablets,



Fesofor Tablets

the standard form of iron therapy
for the iron-deficiency anemias
of infancy and childhood



Smith, Kline & French Inter-American Corporation

Philadelphia and Montreal

Canadian Distributors:

The Leeming Miles Co., Ltd., Montreal



ĺ

The theropeutic volue of summer time vacotian needs no emphasis. These periads away from the rautine, stresses and strains of every day living are looked forward to with great anticipation and recalled afterwards with pleosant recollection.

These vacations ore nevertheless ossocioted with certain hozords which many onticipate and prepore ta meet. About these the family physician is often consulted. In the fallowing pages are listed a number of Fout preparations which will be faund useful in treating some of the conditions which frequently occur and may mor a pleasant vacation in the country.

We shall be pleased to send regular packages of ony or all these products for your own and family use.

Charles E. Frosst & Co.

For Relief of Sunburn SCRAPES, CUTS, POISON IVY

"TAN-GEL"

An antiseptic jelly containing 5% Tannic acid in a water saluble base. Greaseless and pleasantly In 2 oz. and 6 oz. Tubes scented.

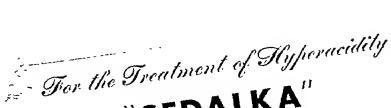
For Severe Burns

INFECTED WOUNDS, SUPERFICIAL WOUNDS

"SULFAMUL"

An oil-in-water emulsion containing 5% Sulfathiazole Foul. The most satisfactory vehicle and effective concentration for local application of Sulfathiazale.

In 2 ounce, I pound and 71/2 pound jars.



EFFERVESCENT ALKALINE SEDATIVE Tous

Relieves hyperacidity and nervous indigestion. Neutralizes the relative acidasis and relieves the later symptams associated with over-eating and

In 4 ox. and 8 ox. bottles with measuring cap. Dose: V2 to one measuring capful repeated every two or drinking.

A. Tiny Bedtime Lavative "PHENO-ACTIVE"

For the treatment of constipation. Phenolphthalein 3/4 gr., Aloin 1/5 gr., Ext. Belladonna B.P., 1/16 gr. Handy tubes of 25 for pocket or handbag, battles of 100 tablets. and Powdered Ipecac, 1/16 gr.

Dose: One or two tablets at bedtime.

For Relief of Hay Fever

AND ASTHMATIC ATTACKS

"DILAMINE"

Acambination of "Theolomine", 2 gr., Ephedrine HCl., 3/8 gr., and "Nactinal" 1/2 gr. Effective in preventing and relieving asthmatic attacks and hay fever.

In bottles of 100 Toblets.

Dose: One tablet three times doily.

For Nasal Congestion "EPHEDROSST"

Establishes a free airway and coats the irritated mucous membranes with a bland protective cavering, enabling the patient to breathe naturally. "Ephedrosst" Inholont 1%, in 1 oz. bottles with dropper. "Ephedrosst" Jelly 1.5%, in 3% oz. tubes with nasal tip.

For Relief of Pain "217 TABLETS" "222 TABLETS"

Quick-acting, effective relief from headaches, neuralgia, rheumatic and ather pain and colds.

In tubes of 12 and bottles of 40 and 100.

For Soothing Sleep

(Sodium ethyl secondary butyl barbiturate "Fixed")

1/2 gr., 1/4 gr. and 1 1/2 gr. sugar coated tablets.

Effective in ½ hour and lasting 4 to 6 hours. Patients awake refreshed with no "hang-aver" of depression. Safe, quick-acting.

In Bottles of 100 and 500 Tablets.

Dose: 1/2 to 11/2 grains at night before retiring.



Multi-Vitamin Therapy

FOR INFANTS and OLDER CHILDREN

"OSTOCO" DROPS

The full estimated daily requirements, for infants and children, of vitamins A, D, B₁, C, and lodine.

In Bottles of 8 cc. and 30 cc., with precision dropper.

Dose: 5 to 10 drops daily.

For the Treatment of Pinworm

"VERMILET"

Enteric coated tablets (No. 409, 3/20 gr., No. 410, 1/2 gr.) of Gentian Violet for the treatment of Pinworm Infestation. Effects cure in approximately 90% of treated patients.

In Bottles of 200 and 500 Toblets.

Dose: For infonts: 3/20 groin for each year of age.

For adults: 2½ gr. toblets three times daily.

For the Treatment of Summer Diarrhoea

"NEUSORB" with MINERAL OIL

A colloidal suspension of Magnesium trisilicate with Mineral oil. Removes the cause of irritation and promotes restoration to normal of inflamed and ulcerated mucous membrane.

In 6 oz. and 16 oz. bottles.

Dose: Infants and children: One to four teospoonfuls in a little water or milk every two hours until relieved. Adults: One to two toblespoonfuls every two hours until relieved.

For the Treatment of Constipation

${ m ``KONDREMUL''}$

Pleasant taste — mixes well with milk or water — pours easily. Three types: with Vitamin B_1 ; with Cascara, and with Phenolphthalein.

In 16 oz. Bottles.

Dose: One tablespoonful on retiring.

FACTS for doctors and dietitians on special diets in which the use of an easily prepared cereal of high nutritive value is indicated.

Is there an ideal cereal for bland diets?

"5 Minute" Cream of Wheat's desirable combination of high nutritive values and low crude fiber content makes it particularly useful in diets for spastic colitis, peptic ulcers and other digestive disorders. In the past, many diets of this type were grossly deficient in Iron. "5 Minute". Cream of Wheat provides a rich source of available Iron, and contributes other important nutrients. Crude fiber content is only one part in 200.

IRON*. One ounce (dry weight) of "5 Minute" Cream of Wheat supplies 12 mg. of highly available Iron for diets deficient in this element.

CALCIUM: PHOSPHORUS*. "5 Minute" Cream of Wheat (per ounce, dry weight) supplies 143 mg. of Calcium and 160 mg. of Phosphorus. The Calcium thus supplied is equivalent to the

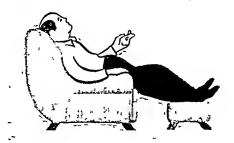
amount in one-half glass of whole milk.

THOROUGHLY DIGESTIBLE. "5 Minute" Cream of Wheat cooks to complete digestibility after only 5 minutes of boiling. During the research leading to the development of "5 Minute" Cream of Wheat it was found that the rate of cooking depends largely on the pH of the cooking water. Through addition of the enriching mineral mixture, it has been possible to raise the pH of the cooking water and greatly accelerate the speed with which the starch cells break down during the cooking process.

NOTE: For free sample package of "5 Minute" Cream of Wheat (4-6 servings) write. The Cream of Wheat Corporation, Dept 732, Winnipeg.

^{*}For diets deficient in these elements.

[&]quot;Cream of Wheat" Trademark Reg U.S Pat. Off.



"Gastro-Intestinal Symptoms
occur more frequently than any other
symptom in patients over 40."*

When the vague complaints of the middle-aged and aging can be attributed to hypochlorhydria, chronic gastritis, and diminished gastric secretion, Gastron provides effective, palatable replacement therapy...hydrochloric acid in therapeutic amount, plus all the gastric enzymes.



For Gastric Hyposecretion

THERAPEUTIC APPRAISAL: An acidified (pH 3.2—4.0), aromatized extract of the entire mucosa of hog's stomach including the pylorus. Gastron provides a physiologic mixture of all constituents of gastric secretion. One Gm. of Gastron will digest 150-200 Gm. of egg albumen.

INDICATED in gastric hyposecretion: gastritis associated with achlorhydria;



anacidity and achylia in middle-age and aging; hypochlorhydria accompanying food allergies and nutritional deficiencies.

THE USUAL DOSE is 2 to 4 teaspoonsful diluted with 1 or 2 volumes of water, after meals.

SUPPLIED in 6 ounce bottles for prescription use, 32 ounce bottles for dispensing.

Frederick Stearn S& Company

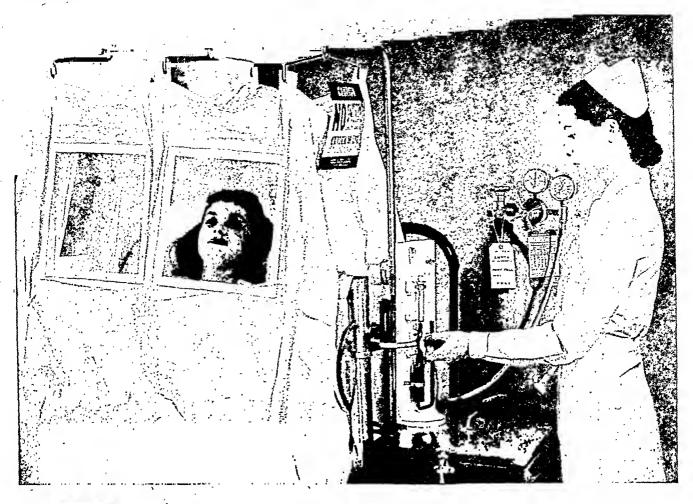
of Canada, Ltd.

WINDSOR, ONT.

NEW YORK KANSAS CITY SAN FRANCISCO DETROIT SYDNEY, AUSTRALIA AUCKLAND, NEW ZEALAND

*Kopelowitz, J. O.: J. Missouri St. M. A. 38 55, 1941

Gastron Trade-Mark Reg



When Oxygen Therapy is Indicated

EARLY ADMINISTRATION AND ADEQUATE DOSAGE ARE IMPORTANT

Early Administration-Medical literature has long emphasized the importance of early administration of oxygen in treating anoxia. One writer has stated, "Clinicians often fail to appreciate the patient's need for oxygen until too much time has passed." Favourable results which have been obtained when oxygen is administered early—even before it becomes a "necessity"-have prompted many physicians to prescribe oxygen at the first evidence of anoxia, lest irreparable damage occur.*

Adequate Dosage-When oxygen is administered by tent, as illustrated, adequate oxygen can be assured only by maintaining within the tent canopy a sufficiently high oxygen concentration to overcome or rélieve the patient's symptoms of anoxia. An oxygen analyzer must be used at frequent intervals to make certain that this concentration is being maintained. Such periodic checks, by revealing any need for adjusting liter flow, will also help to determine whether the tent is operating efficiently.

The Oxygen Therapy Handbook, which describes operating techniques for all types of oxygen-administering apparatus, is available without charge on request.

*References to the medical literature, or reprints when available, will be furnished on request.

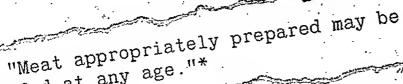
DOMINION OXYGEN (B.P.)

OXYGEN THERAPY DEPARTMENT

DOMINION OXYGEN COMPANY, LIMITED

159 Bay Street

Toronto 1, Ontario



fed at any age."*

"Children need four times the food protein of adults per pound of body weight."*

Meat-with its complete righ-quality proteins - now specially prepared for Babies and Juniors

by Swift Canadian Co. Limited

NOTE: Available now in a few cities—later nationally













READY to heat and serve















STRAINED MEATS FOR BABIES

LABORATORY ANALYSIS

Composition of Swill's Meats for Bables

Percentage proximate chemical analysis*

	Noisture %	Protein %	Fat	Total Ash	Salt %	Calcium ng/100gm	Phosphorus mg/100gm	lron mg/100gm	Thiamire mg/100gm	Pito"avin rz 100em	Nusin FZ/100gm	Calores per ox
Strained Beet Strained Pork Strained Lamb Strained Veal Strained Liver Strained Heart	78 6 75 9 79 0 82 1 78 2 82 7	17 69 17 06 15 63 16 33 15 94 13 33	3 01 6 04 4 48 1 04 4 26 2 51	1 21 1 15 1 32 1 19 1 22 1.20	0 30 0 38 0 45 0 38 0 53 0 53	12 14 16 17 40 12	140 120 170 1E0 270 150	28 17 23 16 77 36	0 010 0.345 0 025 0 024 0 014 0 064	0 242 0 272 0 254 0 252 2 000 0 212	3 24 4 74 4 00 4 93 4 41 4 45	0 52 1.22 1 03 0 75 1 02 0 77

^{*}These data were obtained by analyzing the entire contents of representative cans of products

When you recommend meat in an infant's diet, Swift's Strained Meats for Babies are available as a desirable source of complete, easily assimilated protein. Cooked tender, these meats are processed to a uniformly soft and smooth consistency—almost like custard.

Swift's Strained Meats for Babies are

prepared under laboratory supervision to retain all nutrients possible. They contain nothing but quality meat and broth, slightly salted. Each piece of meat is hand-trimmed with meticulous



cate. All visible fat and connective tissue are removed, as well as every trace of gristle. Fat content of the meats averages less than 4½%. Strained Meats are vacuum packed in natural juices in 3½-ounce tins. The line, in both strained and d'ced forms, comprises: beef, lamb, heart, veal, pork and liver.

All six meats provide complete high-quality proteins, plus B vitamins and minerals—help furnish baby's diet with the variety essential

to optimum nutrition.



DICED MEATS FOR JUNIORS

LABORATORY ANALYSIS

Composition of Swift's Meats for Juniors

Percentace ocoximate chemical analysis*

,	Norsture	Protein	Fat	Total Ash	Salt	Calcium mg, 100±m	Phosphorus mz, 10°zm	fron Nz. 100em	Thiamire ng 1002m	Pibo ^r avin mg 1002m	Niacir rz IOsm	Calories per cz
Diced Beef	74.7	22.63	1 70	1 47	0 47	10	210	33	0 017	0 326	4 68	1 65
Diced Pork	737	21 81	6 48	1 51	0 48	14	200	15	0 452	0 233	3 74	1 45
Diced Lamb	74.3	18 19	6 30	141	Ø 53	18	120	24	0 042	0 227	5 33	137
Diced Vest	76 7	20 38	2 10	I 52	0 47	11	210	16	0 052	0 350	6 28	100
Diced Liver	70.2	21 56	4 33	1 £8	0 48	30	333	72	ರಯಾ	2 200	7 10	1.25
Diced Hearl	76 3	18 19	3 35	1 44	0 41	15	220	4.8	0 156	1 0:7	4 41	1 c3

*These data were obtained by analyzing the entire contents of representative cans of products

Swift's Meats for Juniors are diced into %" cubes, cooked to tenderness and vacuum packed in 5-ounce tins. Sufficient firmness is retained in the cubes to encourage chewing. They bridge the period between the time infants eat strained meats and table meats.

These meats for babies and juniots



are, like all meats, 96% to 98% digestible. They have been developed especially for infant feeding after intensive research by Swift's nutritionists in consultation with leading pediatricians. You may recommend Swift's Meats for Babies and Juniors with urmost confidence.

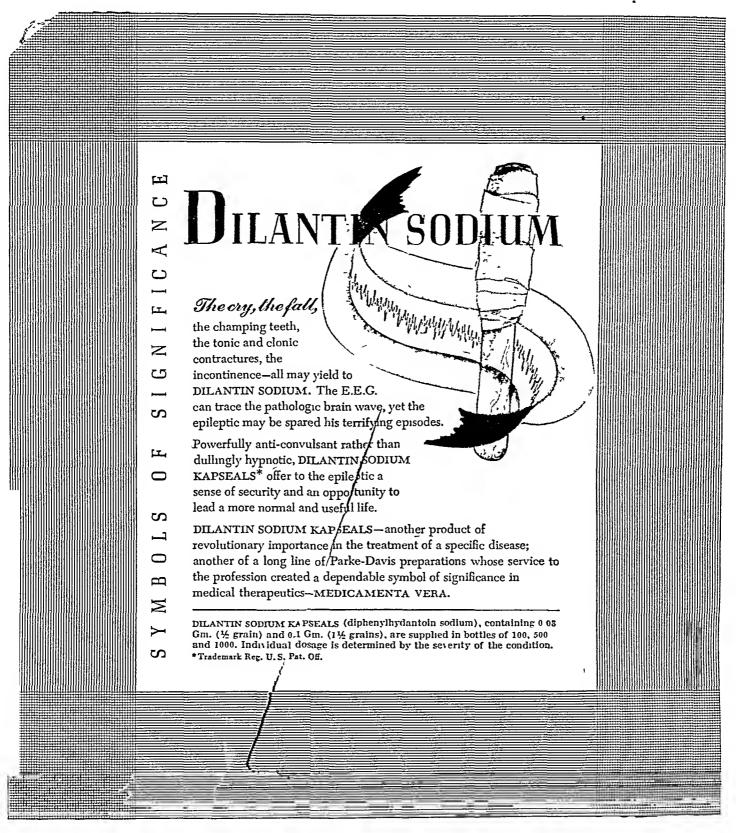
All nutritional statements made in this advertisement are accepted by the Council on Foods and Nutrition of the American Medical Association.



SWIFT CANADIAN CO.

TORONTO, CANADA

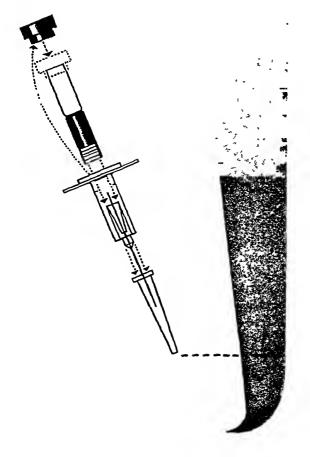




PARKE, DAVIS & COMPANY, LTD., WALKERVILLE, ONT.







Practically as simple as that is the preparation for an injection of Abbott's Romansky formula of penicillin calcium in oil and wax when you use a new Sterile Disposable Cartridge Syringe. And the reason? No further sterilization of needle and syringe. No bother of drying, with its danger of complications from remaining traces of water. No difficulty of drawing the suspension into a syringe and no wastage. And, what's more, no need to worry about cleaning the needle and syringe afterwards. Just throw them away. Each set is complete, compact, easy to carry and ready for use. It consists of a disposable plastic syringe with an affixed standard 20-gauge, 11/2-inch stainless steel needle and a glass cartridge-plunger containing a 1-cc. dose of 300,000 units of penicillin suspended in peanut oil and beeswax. Occasionally supply does not meet demand, but we're speeding up production all the time. Abbott LABORATORIES, LIMITED, MONTREAL.

Abbott's Penicillin in Oil and Wax

with a disposable cartridge syringe



* Perhaps you know her — the secondary anemia patient whose improvement under iron therapy ceases at a point below normal, or who improves very slowly. Certainly such cases are not uncommon. This is a problem to which University of Wisconsin investigators — and Abbott — offer on answer. The University research workers have found that maximum hemoglobin regeneration requires the presence of a small but definite amount of copper as a metabolic activator for the iron. In Cafran Elixir, Abbott provides a preparation which supplies both iron and copper in the exact ratio, 1:25, found by the University group to be most effective. Furthermore, it also contains liver concentrate which provides supplemental amounts of the B-complex vitamins. Cofron Elixir is unusually pleasant in taste. It is suggested for the treatment of nutritional and other secondary anemias, far nanspecific conditions in which there is a lowered hemoglobin percentage or moderately reduced red cell caunt, far anemias accompanying pralonged illness, and for general use as an iron tonic. Cofron Elixir is available through pharmacies everywhere in 12-fluidounce and 1-gollon bottles.

cofron elixir

The Canadian Medical Association Journal



Editor

H. E. MACDERMOT, M.D., F.R.C.P.[C.]

Published by
THE CANADIAN MEDICAL ASSOCIATION
1947

INDEX TO VOLUME 56

ABORTION infectious, bruccllosis, J. W. Scott 414. ACID

folic: See also Anæmia, pernicious.
—folic acid story, D. L. Thomson 432. ACTINOMYCOSIS

-treatment of actinomycosis with streptomycin, P. G. Costigan 431.

ADAMSON, J. D. and BEAMISH, R. E., Atypical pneumonia 361.

TISDALE, P. K., BRERETON, D. C. and CARD, L. W. B., Hong Kong repatriates 481.

ADENOMYOMA: See Pregnancy, tumours.

AEROSOL THERAPY

—aerosol therapy, M. Aronovitch 643.

AGNEW, H., Rôle of the hospital in medical economics 558.

smoke, pollution (E) 87.
ALEXANDER, H. D., True unicornuate uterus 539.
ALLEN, A. S., Modern medicine in China 211.

ALLMARK, M. G. and LAVALLEE, A., Potency of digitalis whole leaf products sold on the Canadian market, 1946 215.

AMINO-ACIDS

-amino acids, S. W. Fox 76.

ANÆMIA

permicious, folic acid in permicious anamia, M. J. Tuttle and J. W. Scott 396.

ANÆSTHESIA

-anæsthetic emergencies, A. B. Noblc 490.

for plastic surgery, R. A. Gordon 277.
 in thoracic surgery, H. J. Shields 287.

—muscle relaxation in surgery, H. R. Griffith 281. pentothal, G. A. F. Wainwright 198.

-relief of postanæsthetic vomiting through pyridoxine, W. Bergmann 554.

—safety measures in anæsthetics, B. C. Leech 28. ANDISON, A. W., Cæsarean section 170. ANGLIN, A., Sarcoidosis 177.

ANTIBIOTICS

in therapy, J. A. Dauphinee 1.

ARMSTRONG, A. R. and POHRAN, N., Confusion in typing stored blood 554.

and PRICE, N. E., Acid-fast bacilli in paraffin scetions 83.

ARONOVITCH, M., Aerosol therapy 643. ARRHYTHMIA

aurieular flutter, W. N. Bell and G. F. Strong 404. ARTERIES. See also Endarteritis obliterans.

coronary, anastomosis between eoronary vessels and internal mammary artery, A. M. Vineberg and B. L. Jewett 609.

-blood changes in coronary oeclusion, W. M. Cameron, J. H. B. Hilton, S. R. Townsend and E. S. Mills 263.

-management of asthma, H. K. Detweiler 392. ATLEE, H. B. Ectopic pregnancy 268. AURICULAR FLUTTER: See Arrhythmia. AYRE, W. B., Hypertrophic ostcoarthropathy 71.

BABKIN, B. P. and KARP, D., Quinine and atabrinc in gastric secretion 137.

BACILLI. Sec Tuberelc Bacilli.

BALFOUR, J. D. and ENGLAND, N. J., Tracheo-

bronchial diphtheria 661.

BATEMAN, J. E., Galvanic stimulation and limb volume 627.

BAXTER, H. and ELVIDGE, A., Plastic repair in an electrical burn 202. BEAMISH, R. E.: See ADAMSON, J. D., jt. auth.

BELL, P. G. and O'NEILL, J. C., Optic atrophy in prisoners 475.

BELL, W. N. and STRONG, G. F., Auricular flutter 404.

BENSLEY, E. H.: See RABINOWITCH, I. M., jt. auth.

BERGMANN, W., Relief of postanæsthetic vomiting

through pyridoxine 554.

BEST, C. H.: See NOBLE, R. L., jt. auth.

BLACK, R. W.: See ONESTI, S. J., jt. auth. BLOOD

grouping. Rh factor and erythroblastosis, C. E. Snelling 47.

typing, confusion in typing stored blood, A. R. Armstrong and N. Pohran 554.

BLOOD PRESSURE

high, non-renal hypertension, S. M. Friedman and C. L. Friedman 655.

BLOOD SUGAR.

-test, S. Gold 437.

BONES

diseases, bone lesions in infancy, A. E. Childe 292. -polyostotic fibrous dysplasia, H. M. Coleman 318. BREAST

abscess, in infant, G. F. Meissner and J. H. Fisher 316.

BRERETON, D. C.: See ADAMSON, J. D., jt. auth. BRIEN, F. S., Control of respiratory infections 650. Infectious mononucleosis 499.

BRITISH MEDICAL JOURNAL

—coal shortage issue (E) 439.

BROKOVSKI, E. J., Lymphatic leukæmia 542.

BROWN, A. B., MYLKS, G. W. JR. and ROBINSON, C. N., Air embolism during labour 427.

CÆSAREAN SECTION

—Cosarcan section, A. W. Andison 170. CAMERON, W. M., HILTON, J. H. B., TOWNSEND, S. R. and MILLS, E. S., Blood changes in coronary occlusion 263.

CAMPBELL, G. A. and MALONEY, P. J., Pædiatric endocrinology 533.

CAMSI

-tenth annual conference 80.

CANADIAN MEDICAL ASSOCIATION -A. D. Kelly, Assistant Secretary 223. CANCER

multiple, malignancy cured by surgery, L. H. McKim

CARD, L. W. B.: See ADAMSON, J. D., jt. auth. CASTRATION

effects, personality changes in castration. F. L. McNair 400.

CATHETERIZATION. See Heart.

CAVEN, W. R., Pentosuria 429.

CHEMISTRY

biochemistry, in medicine, D. L. Thomson 129. CHILDE, A. E., Bone lesions in infancy 292.

CHILDREN -challenge of the young child, D. V. Hutton 646. CHINA

—Canadian aid to China (C) 106.
—modern medicine, A. S. Allen 211.

CHORIONEPITHELIOMA: See Placenta, tumours. CILIA

-nasal cilia, G. E. Tremble 255.

CIRCUMCISION

and venercal disease, R. A. Wilson 54. CLARKSON, F. A., Linnacus-botanist and physician 440.

CLEVELAND, D. E. H., Malignant lymphoma 614. COLEMAN, H. F., Polyostotic fibrous dysplasia 318. COSTIGAN, P. G., Treatment of actinomycosis with streptomycin 431.

COGHLIN, D. G., Pregnancy with uterine adenomyoma

CRIME

-irresistible impulse and crime (C) W. C. J. Meredith 577.

CUNNINGHAM, J. G., Industrial health problems in the war 34.

CYANOSIS

-in infants in rural areas, H. Medovy, W. C. Guest and M. Victor 505.

DANBY, C. W. E. and FORSEY, R., Cultural study of ringworm 641.

DAUPHINEE, J. A., Antibiotics in therapy 1

DAVIDSON, G. A., Psychomotor epilepsy 410. DAVIS, M. M., Congenital atresia of the esophagus

DEADMAN, W. J., Sudden death 273. DEAFNESS

therapy, use and limitations of hearing aids, G. A. Fee 366.

DEATH

sudden, W. J. Deadman 273.

—causes (E) 439.

DEMAY, M.: See WEIL, R. J., jt. auth.

DEPARTMENT OF VETERANS' AFFAIRS

-central x-ray film library (E) 87. DERMATITIS

.—seborrhæic, I. Price 25. DERMATOLOGY

—skin tests in dermatology, B. Kanee 529. DETWEILER, H. K., Estimation of liver function 51. Management of asthma 392.

DIABETES

alloxan, B. A. Houssay 519.

DIATHERMY

apparatus, electro-medical apparatus and radio interference (E) 440.

-regulations for use of short wave diathermy equipment 436, 667.

DIGITALIS

-potency of digitalis whole leaf products sold on the Canadian market, 1946, M. G. Allmark and A. Lavallée 215.

DIPHTHERIA

tracheobronchial, J. D. Balfour and N. J. England

DRAGSTEDT, L. R., Surgery of the stomach 133.

antihistamine drugs, C. H. A. Walton and J. A. Krist-jansson-MacDonell 162.

streptomycin (E) 215.
DUDLEY, M. G.: See WALTON, C. H. A., jt. auth.
DUNCAN, J. H., Marie's syndrome 70.

DUNSWORTH, F. A.: See LESLIE, W., jt. auth. DYSPLASIA: See Boncs.

ECONOMICS, MEDICAL

-Health Services Bill, T. C. Routley SS.

-prepaid medical care as a social need and a medical weapon 573.

-rôle of the hospital, H. Agnew 558.

EDUCATION, MEDICAL

postgraduate, medical training in Great Britain, C. H. Vipond 575.

ELECTRICITY

injuries, plastic repair in an electrical burn. H. Baxter and A. Elvidge 202. ELVIDGE, A.: See BAXTER, H., jt. auth.

EMBOLISM

air: See Embolism, gas, ccrebral, air embolism, H. G. Kelly, W. C. Gibson and J. F. Meakins 388.

gas, air embolism during labour, A. B. Brown, G. W. Mylks, Jr. and C. N. Robinson 427.

pulmonary, massive pulmonary embolus, A. K. M. Magee and R. K. Magee 210.

EMPYEMA

-chronic, G. F. Skinner 371

ENDARTEÉITIS OBLITERANS

—obliterative arterial disease, J. C. Luke 377. ENGLAND, N. J.: See BALFOUR, J. D., jt. auth. EPILEPSY

-psychomotor epilepsy, G. A. Davidson 410. therapy, social therapy of epilepsy, W. G. Lennox 638

ERYTHROBLASTOSIS: See Blood, grouping. ESKIMOS

-some Eskimo remedies and experiences of an amateur doctor among the Labrador Eskimo, Rev. F. W. Peacock 328.

ESOPHAGUS

abnormalities, congenital atresia of the esophagus, M. M. Davis 539.

ETHICS, MEDICAL

-medical citizenship, S. J. Onesti and R. W. Black 80.

ETZIONY, M., Prayer of a Physician 100. EVELYN, K. A., Medical applications of artificial radioactive isotopes 547.

EXTREMITIES

-galvanic stimulation and limb volume, J. E. Bateman 627.

EYES

-optic atrophy in prisoners, P. G. Bell and J. C. O'Neill 475.

FEE, G. A., Use and limitations of hearing aids 366. FLOCKS, R. H., Uretcro-intestinal anastomosis 259. FISHER, J. H.: See MEISSNER, G. F., jt. auth. FOWLER, A. F.: See RABINOWITCH, I. M., jt. auth. FOX, S. W., Amino acids 76.
FRIEDMAN, C. L.: See FRIEDMAN, S. M., jt. auth. FRIEDMAN, S. M. and FRIEDMAN, C. L., Non-renal

G

GALLBLADDER

—cholecystectomy, D. Macdonald 523. GAUMOND, E. and GRANDBOIS, J., Vitamin D2 in

hypertension 655.

lupus vulgaris 205.
GAUTHIER, C. A. (E) 87.
GEOGHEGAN, J. J.: Shock therapy at the Ontario Hospital, London 15.
GERRIE, J., Fractures of the mandible (C) 578.
GIBSON, W. C.: See KELLY, H. G., jt. auth.
GILL, G. and LIGHT, W., X-ray localization of ureteral obstruction 513 ureteral obstruction 513.

GOLD, S., A blood sugar test 437.
GORDON, A. L.: See RABINOWITCH, I. M., jt. auth.
GORDON, R. A., Anæsthesia for plastic surgery 277.
GRANDBOIS, J.: See GAUMOND, E., jt. auth.

GRIFFITH, H. R., Muscle relaxation in surgery 281. GRINKER, R. R., Psychiatric objectives 153. GUEST, W. C.: See MEDOVY, H., jt. auth.

GWYN, N. B., Toronto Medical Historical Club 218.

HÆMOGLOBIN

-levels, W. W. Hawkins, H. J. Leeson and E. W. McHenry 502.

HANLEY, F. W.: See PETT, L. B., jt. auth. HAUGHTON, T. J., Vertigo 308. HAWKINS, W. W., LEESON, H. J. and McHENRY, E. W., Hæmoglobin levels 502.

HAY FEVER

plants, in Manitoba, C. H. A. Walton and M. G. Dudley 142, HEADACHE

therapy, histomine, W. Leslie and F. A. Dunsworth

HEALTH INSURANCE

-in Austria (C) 336. HEARING: Sec Deafness, therapy. -

-eatheterization, A. L. Johnson, D. G. Wollin and J. B. Ross 249.

diseases, surgery, J. H. Palmer 380. HÆMATOPOIETIC SYSTEM

diseases, transfusion in erythroblastosis (C) 227. HERNIA

—herniorrhaphy (C) 228.
—para-esophageal hiatus hernia, K. R. Trueman 149.
HILL, J. E.: See PITTS, H. H., jt. auth.
HILTON, J. H. B.: See CAMERON, W. M., jt. auth.

HISTAMINE: See Headache, therapy. HOBBS, M. E., Cystic disease of the liver 659. HONG KONG

-repatriates, J. D. Adamson, P. K. Tisdale, D. C. Brereton and L. W. B. Card 481.

HORNER, G., Retirement of Dr. Gerald Horner (E) 326.

HOSPITALS

-sehool for hospital administration 670. HOUSSAY, B. A., Alloxan diabetes 519. HURLEY, G. A. P., Closed pneumonolysis 625. HUTTON, D. V., Challenge of the young child 646. HYPEREMESIS: See Pregnancy, vomiting in.

INDUSTRY and OCCUPATIONS

industrial health, problems in the war, J. G. Cunningham 34.

surgery, chronic problems in industrial surgery, W. N. Kemp 41.

INSULIN

globin, I. M. Rabinowitch, A. F. Fowler, E. H. Bensley, A. L. Gordon and M. Mountford 595. INTESTINES

anastomosis, urctero-intestinal anastomosis, R. H. Flocks 259.

gangrene, gangrenous bowel in infancy, D. E. Ross and B. L. Jewett 386.

obstruction, care of intestinal obstruction, H. R. Robertson 487.

parasites, intestinal parasites in Hong Kong P.O.W., T. H. Williams 630.

JAWS

fractures of mandible, J. D. McInnes 314.

—of mandible (C) J. Gerrie 578.

JEWETT, B. L.: See ROSS, D. E., VINEBERG, A.
M., jt. auth.

JOHNSON, A. L., Schemm diet in treatment of ædema

(E) 214.

JOHNSON, A. L., WOLLIN, D. G. and ROSS, J. B., Heart eatheterization 249.

KANEE, B., Skin tests in dermatology 529. KARP, D.: See BABKIN, B. P., jt. auth. KELLY, H. G., GIBSON, W.C. and MEAKINS, J. F., Cerebral air embolism 388.

KEMP, W. N., Chronic problems in industrial surgery

Treatment of hyperemesis gravidarum 409. KRISTJANSSON-MacDONELL, J. A.: See WALTON, C. H. A., jt. auth.

LARYNGO-TRACHEO-BRONCHITIS. See

Respiratory Tract.
LAVALLEE, A.: See ALLMARK, M. G., jt. auth. LEECH, B. C., Safety measures in anæstheties 28.

LEESON, H. J.: See Hawkins, W. W., Jt. auth.

LEESON, L. H., Mastoiditis in children 298.

LENNOX, W. G., Social therapy of epilepsy 638.

LESLIE, W. and DUNSWORTH, F. A., Headache: treatment with histamine 509.

LEUKÆMIA

lymphatic, E. J. Brokovski 542.

LEWIS, B. I., Psychological component 303. LEWIS, L., Cutaneous myiasis 319. LIGHT, W.: See GILL, G., jt. auth.

LINDSAY, W. K., Mucosal respiratory syndrome 527. LINNAEUS

-botanist and physician, F. A. Clarkson 440. LITTLE, H. S., Influenzal meningitis 496.

LIVER

-estimation of liver function, H. K. Detweiler 51. diseases, cystie, M. E. Hobbs 659.

LUKE, J. C., Obliterative arterial disease 377. Tetraethyl ammonium chloride 435.

LYMPHOMA: See Tumours, lymphoma.

MACDONALD, D., Cholecystectomy 523.
MCHENRY, E. W.: See HAWKINS, W. W., jt. auth. McINNES, J. D., Fractures of mandible 314.

MacKECHNIE, H. A., Small tumours of the skin 56. McKIM, L. H., Multiple malignancy cured by surgery

MacLEAN, A. R., No disease 321.

McCLINTON, J., Doetor's own waiting room 563.

MacKINNON, A. G., Pulmonary type of tularemia 541. McNAIR, F. E., Personality changes in eastration 400. MAGEE, A. K. M. and MAGEE, R. K., Massive pulmonary embolus 210.

MAGEE, R. K., Kuntscher method of pin fixation 65.

See MAGEE, A. K. M., jt. auth.
MALONEY, P. J.: See CAMPBELL, G. A., jt. auth.
MANDIBLE: See Jaws.

MANITOBA MEDICAL ASSOCIATION
—M. T. Macfarland, Secretary 223.

MASTOIDITIS

—in children, L. H. Lecson 298.

MEAKINS, J. F., Mucosal respiratory syndrome 663.

—See KELLY, H. G., jt. auth.

MEDOVY, H., GUEST, W. C. and VICTOR, M.,

Cyanosis in infants in rural areas 505.

MEISSNER, G. F. and FISHER, J. H., Breast absecss in infant 316.

MENINGITIS

influenzal, H. S. Little 496.

MENOPAUSE

-treatment during the menopause, M. C. Watson

MEREDITH, W. C. J., Irresistible impulse and crime

(C) 577.
MILLS, E. S., Phlebothrombosis 284.
——See CAMERON, W. M., jt. auth.

MONONUCLEOSIS

—infectious, F. S. Brien 499.

MORGAN, A. L., Myopia 406.

MORGAN, E. A. and WISHART, D. E. S., Laryngol trachco-bronchitis 8.

MOSELEY, H. F., Metallic glenoid rim 320. MOTION SICKNESS

-treatment of motion sickness, R. L. Noble, E. A

Sellers and C. H. Best 417.

MOUNTFORD, M.: See RABINOWITCH, I. M., jt auth.

MUSCLE, relaxation: See Anæsthesia. MYIASIS

-cutaneous myiasis, L. Lewis 319.
MYLKS, G. W. JR.: See BROWN, A. B., jt. auth. MYOPIA

-myopia, A. L. Morgan 406.

NOBLE, A. B., Anæsthetic emergencies 490. NOBLE, R. L., SELLERS, E. A. and BEST, C. H., Treatment of motion siekness 417.

NURSES

—shortage of nurses (E) 669. NUTRITION

-in surgery, H. R. Robertson and D. W. Smaill 59. surveys, among British Columbia children, L. B. Pett and F. W. Hanley 187.

OCCUPATIONAL THERAPY

-in rheumatoid arthritis, H. P. Wright 313. **ŒDEMA**

-Schemm diet in the treatment of ædema (E), A. L. Johnson 214. O'NEILL, J. C.: See BELL, P. G., jt. auth.

ONESTI, S. J. and BLACK, R. W., Medical eitizenship 80,

ONTARIO MEDICAL ASSOCIATION

-H. Dunham, Secretary 223.

ORTHOPÆDICS

apparatus, Kuntscher method of pin fixation, R. K. Magee 65.

-metallie glenoid rim, H. F. Moseley 320. OSTEOARTHROPATHY

hypertrophie, W. B. Ayre 71. Marie's syndrome, J. H. Duncan 70.

OVARY

cysts, gaugrenous ovarian eyst in child of four, E. R. Selby 74.

PÆDIATRICS

endocrinology, G. A. Campbell and P. J. Maloney

PALMER, J. H., Surgery of heart disease 380. PATERSON, J. F., Pleural effusions and tuberculosis

PATIENTS

-rating by code (C) 228.
PEACOCK, F. W., Some Eskimo remedies and experiences of an amateur Doctor among the Labrador Eskimo 328.

PENICILLIN

in sinusitis, R. Seott-Moncriest 296.

PENTOSURIA

—pentosuria, W. R. Caven 429. PETT, L. B. and HANLEY, F. W., Nutrition survey among B.C. ehildren 187.

?HYSICIANS

—doctor's own waiting-room, J. McClinton 563.
—prayer of a physician. M. Etziony 100.
PITTS, H. H. and HILL, J. E., Ganglioneuroma of stomach 537.

LACENTA

tumours, ruptured chorionepithelioma, W. O. Steven-

LASTIC REPAIR: See Electricity, injuries.

DETTRA

carcinoma, endothelial, F. L. Skinner 659.

LEURISY

L'ubereulous, pleural effusions and tuberculosis, J. F. Paterson 634.

LIEUMONIA

-atypical, J. D. Adamson and R. E. Beamish 361. IEUMONOLYSIS: See Tuberculosis, pulmonary. HRAN, N.: See ARMSTRONG, A. R., jt. auth. **F)LIOMÝELITIS**

therapy, curare in treatment of poliomyelitis (E) 557.

REGNANCY

extra-uterine, ectopic, H. B. Atlee 268.

- sumours complicating, pregnancy with utcrine adenomyoma, D. G. Coghlin 315.

vomiting in, treatment of hyperemesis gravidarum, W. N. Kemp 409.

PRESCRIPTIONS

Latin, and the metric system in prescription writing, R. A. Waud 605.

necessity for prescriptions (E) 671.

PRICE, I., Schorrhæic dermatitis 25. PRICE, N. E.: See ARMSTRONG, A. R., it. auth. PROETZ, A. W., X-ray evidence of sinus disease, 183.

PROSTATE sareoma, M. I. Seng and M. Siminovitch 425. PSYCHIATRY

-psychiatrie objectives, R. R. Grinker 153.

PSYCHOLOGY

-no disease, A. R. MacLean 321. -psychological component, B. I. Lewis 303.

PYRIDOXINE: See Anæsthesia.

R

RABINOWITCH, I. M., FOWLER, A. F., BENSLEY, E. H., GORDON, A. L. and MOUNTFORD, M., Globin insulin 595.

RADIOACTIVITY

-medical applications of artificial radioactive isotopes, K. A. Evelyn 547.

RESEARCH

dental, Associate Committee for Dental Research (E) 215.

RESPIRATORY TRACT

bronchitis, laryngo-tracheo-bronehitis, E. A. Morgan and D. E. S. Wishart 8.

diseases, control of respiratory infections, F. S. Brien 650

syndromes, mueosal respiratory syndrome, C. B. Selioemperlen 73.

-mueosal respiratory syndrome, W. K. Lindsay 527. syndromes, mueosal respiratory syndrome, J. F. Meakins 663.

RHEUMATISM

-national scheme for treatment of rheumatic disease in Britain, H. S. Robinson 665.

RINGWORM

cultural study of ringworm, C. W. E. Danby 641. ROBERTSON, H. R., Care of intestinal obstruction

and Smaill, D. W., Nutrition in surgery 59. ROBINSON, H. S., A national scheme for treatment of

rheumatic disease in Britain 665.

ROBINSON, C. N.: See BROWN, A. B., jt. auth. ROSS, D. E. and JEWETT, B. L., Gangrenous bowel

in infancy 386.
ROSS, J. B.: See Johnson, A. L., jt. auth. ROUTLEY, T. C., Health Service Bill 88.

S

SARCOIDOSIS

-sarcoidosis, A. Anglin 177.

SCHOEMPERLEN, C. B., Mueosal respiratory syndrome 73.

SCOTT, J. W., Brucellosis 414.

See TUTTLE, M. J., jt. auth.

SCOTT-MONCRIEFF, R., Penicillin in sinusitis 296.

SELBY, E. R., Gangrenous ovarian cyst in child of four 74.

SELLERS, E. A.: See NOBLE, R. L., jt. auth. SENG, M. I. and SIMINOVITCH, M., Sareoma of the prostate 425.

SERUM

-anti-reticular cytotoxic scrum (ACS), H. P. Wright 84.

SHERK, B. E., Mixed parotid tumour 208. SHIELDS, H. J., Anæsthesia in thoracie surgery 287. SHOCK

therapy, shock therapy at the Ontario Hospital, London, J. J. Geoghegan 15.

SIMINOVITCH, M.: See SENG, M. I., jt. auth. SINUSES, NASAL

-x-ray evidence of sinus disease, A. W. Proetz 183. SKIN

diseases, radiation therapy of skin disease, J. Sommers 185.

tumours, small tumours of the skin, H. A. Mac-Kechnie 56.

SKINNER, F. L., Carcinoma of the pleura 659.

SKINNER, G. F., Chronic empyema 371. SMAILL, D. W.: See ROBERTSON, H. R jt. auth. SNELLING, C. E., The Rh factor and eryblastosis

SOMMERS, J., Radiation therapy of skir ise 185. SPLEEN

–splenosis, G. H. Stobie 374.

SPOONER, C. M., Treatment of urcthritis 193. STEVENSON, W. O., Ruptured chorionepithelioma 658. STOBIE, G. H., Splenosis 374. STOMACH

secretion, quinine and atabrine in gastric secretion, B. P. Babkin and D. Karp 137. ganglioneuroma of stomach, H. H. Pitts and J. E.

Hill 537.

surgery, L. R. Dragstedt 133. STRONG, G. F.: See BELL, W. N., jt. auth.

TETRAETHYL

-ammonium chloride, J. C. Luke 435. THIAMINE CHLORIDE: See Vitamins, B.

THOMSON, D. L., Folic acid story 432.
TISDALE, P. K.: See ADAMSON, J. D., jt. auth.
THOMSON, D. L., Biochemistry in medicine 129. THROMBOPHLEBITIS

—phlebothrombosis, E. S. Mills 284. TOWNSEND, S. R.: See CAMERON, W. M., jt. auth. TREMBLE, G. E., The nasal cilia 255.

TRUEMAN, K. R., Para-esophageal hiatus hernia 149. TUBERCLE BACILLI

-acid-fast bacilli in paraffin sections, A. R. Armstrong and N. E. Price S3.
TUBERCULOSIS, PULMONARY

surgical therapy, pneumonolysis, closed, G. A. P. Hurley 625.

TULARÆMIA

pulmonary, type of tularæmia, A. G. MacKinnon 541. TUMOURS

lymphoma, malignant lymphoma, D. E. H. Clevcland 614.

mixed, parotid, B. E. Sherk 208. TUTTLE, M. J. and SCOTT, J. W., Folic acid in pernicious anemia 396.

UNRRA

-health division closes 455.

URETERS

obstruction, x-ray localization of ureteral obstruction of ureteral obstruction, G. Gill and W. Light

URETHRA

diseases, treatment of urcthritis, C. M. Spooner 193. UTERUS

abnormalities, true unicornuate uterus, H. D. Alexander 539.

VENEREAL DISEASES

-circumcision and venereal disease, R. A. Wilson 54. VERTIGO

—vertigo, T. J. Haughton 308.
VICTOR, M.: See MEDOVY, H., jt. auth.
VINEBERG, A. M. and JEWETT, B. L., Anastomosis between coronary vessels and internal mammary

artery 609.
VIPOND, C. H., Postgraduate medical training in Great Britain 575.

VITAMINS

B, thiamine chloride intrathceally, R. J. Weil and M. Demay 545.

D2, in lupus vulgaris, E. Gaumond and J. Grandbois

WAINWRIGHT, G. A. F., Pentothal anæsthesia 198. WALTON, C. H. A. and DUDLEY, M. G., Hay fever

plants in Manitoha 142. and KRISTJANSSON-MacDONELL, J. A., Antihistamine drugs 162.

-medical officers appointed to the R.C.A.M.C. 577. —medical officers struck off strength of the R.C.A.M.C. 105, 230, 335, 577, 686. WATSON, M. C., Treatment during the menopause 620.

WAUD, R. A., Latin and the metric system in prescription writing 605.

WEIL, R. J. and DEMAY, H., Thiamine chloride intrathecally 545.

WILLIAMS, T. H., Intestinal parasites in Hong-Kong P.O.W. 630.

WILSON, R. A., Circumcision and venercal disease 54. WISHART, D. E. S.: See MORGAN, E. A., jt. auth. WOLLIN, D. G.: Sec JOHNSON, A. L., jt. auth. WORLD HEALTH ORGANIZATION

-World Health Organization 226.

WRIGHT, H. P., Anti-reticular cytotoxic serum (ACS)

-Occupational therapy in rheumatoid arthritis 313.

X-RAY

-localization of ureteral obstruction, G. Gill and W. Light 513.

BOOK REVIEWS:

Actions of radiations on living cells, D. E. Lea 122. Allergy in practice, S. M. Feinberg, O. C. Durhamand C. A. Dragstedt, 2nd ed. 244.

Atlas of histopathology of the skin, G. H. Percival,
A. M. Drennan and T. C. Dodds 702.

Autopsy diagnosis, O. Saphir, 2nd ed. 704. Bacteria in relation to nursing, C. E. Dukes 244.

Bibliography of infantile paralysis, compiled by L. Hektoen 358.

Buchanan's manual of anatomy, edited by F. W. Jones and Sir Wm. Collins, 7th ed. 704.

Cardiovascular Diseases, D. Scherf and L. J. Boyd 702.

Charles-Edouard Brown-Séquard, J. M. D. Olmsted 702.

Clinical handbook for residents, nurses and students, V. M. Coppleson, 3rd ed. 122. Conference on diagnosis in sterility, edited by E. T.

Angle 124.

Dermatology for nurses, K. A. Baird 470.

Diagnosis of nervous diseases, J. P. Stewart, 9th cd.

Diseases of the adrenals, L. J. Soffer 124.

Diseases of the retina, H. Elwyn 121.

Essentials of obstetrics and gynacology, W. A. Scott and H. B. Van Wyck 704.

Eye manifestations of internal diseases, I. S. Tassman, 2nd cd. 470.

Eye surgery, H. B. Stallard 706.

Food and nutrition, E. W. H. Cruickshank 124. Gastroenterology in general practice, L. Pelner 472. Gynecology for nurses, A. D. Campbell and M. A. Shannon 244.

Hermaphroditos, the human intersex, A. P. Cawadias, 2nd cd. 124

Hospital care of the surgical patient, G. Crile and F. L. Shively, 2nd ed. 358.

Human ear, S. L. Polyak, G. McHugh and D. K.

Judd 248.

Human genetics, Vols. I, II, R. R. Gates 472. Insight and personality adjustment, T. Benedek 122. Integrated practice of medicine, H. T. Hyman 706. Introduction to clinical neurology, G. Holmes 244.

Jewish luminaries in medical history, H. Friedenwald

Medical jurisprudence, W. F. Rhodes, I. Gordon and R. Turner, 2nd ed. 121.

Medical services by government local, state and federal, B. J. Stern 121.

Medicine as a profession, G. H. Murphy 246.
Men without guns, DeW. Mackenzic and C. Worden
121.

Modern treatment of diabetes mellitus, W. S. Collens and L. C. Boas 470.

Mongolism and cretinism, C. E. Benda 358. Narcoties and drug addiction, E. Hesse 358.

Nature of disease up to date, J. E. R. McDonagh 470.

Neurology and psychiatry for nurses, F. P. Moersch, 3rd ed. 470.

Normal encephalogram, L. M. Davidoff and C. G. Dyke, 2nd ed. 124. Nutrition and chemical growth in childhood, Vol. II, I. G.-Macy 126. Penicillin, edited by Sir Alex. Fleming 246.
Penicillin in general practice, J. L. Hamilton-Paterson 126. Penicillin in neurology, A. E. Walker and H. C. Johnson 706. Penicillin in syphilis, J. E. Moore 706. Penicillin, its properties, uses and preparations 246. Peripheral circulation in health and disease, R. L. Richards 708. Pharmacology and therapeutics, A. R. Cushny, 13th ed. 472 Practical chemistry for medical students, W. Klyne 122. Practical handbook of the pathology of the skin, J. M. H. MacLeod and I. Muende, 3rd ed. 122. Practical malariology, P. F. Russell, L. S. West and R. D. Manwell 246. Principles of hæmatology, R. L. Haden, 3rd ed. 360. Principles of neurological surgery, L. Davis, 3rd ed. Pulmonary tuberculosis, R. Y. Keers and B. G. Rigden, 2nd ed. 708. Physical medicine in general practice, A. L. Watkins Renal hypertension, E. Braun-Menendez et al. 126. Retinal structure and colour vision, E. N. Wilson 704. Sir Frederick Banting, L. Stevenson 360. Skin diseases in children, G. M. MacKee and A. C. Cipollaro, 2nd ed. 472. Technical minutiæ of extended myomectomy and ovarian cystectomy, V. Bonncy 126. Textbook of clinical neurology, J. M. Nielson, 2nd ed. revised 246. Textbook of pædiatrics, Mitchell-Nelson, edited by W. E. Nelson, 4th ed. revised 128.
Tutoring as therapy, G. Arthur 708.
Urologic roentgenology, M. B. Wesson, 2nd ed. 470.
Uterotubal insufflation, I. C. Rubin 704. SOCIETIES, MEDICAL Academy of Mcdicine, Toronto 101. Canadian Medical Association, annual meeting, Winnipeg, June 1947, 101, 221, 331, 448, 567, 671.

—hospitals in Winnipeg 680.

—L'Association Médicale du Canada, Division de la Province de Ouébes 220. Province de Québec 330. Brandon and District Medical Society 102 Canadian Association of Radiologists 333. Canadian Otolaryngological Society 682 Defence Medical Society M.D. No. 2, 453. Detence Medical Society M.D. No. 2, 453.

—M.D. No. 4 682.

District No. 7, Alberta 101.

District No. 2, Lethbridge 225.

District No. 9, Vegreville 226.

Guelph Medical Society 102.

Lanark County Medical Society 102.

La Société de Chirurgie de Montréal 103, 454.

La Société Médicale des Hônitaux Universitai La Société Médicale des Hôpitaux Universitaires de Québec 102, 225, 334, 454, 571, 683.
London Academy of Medicine 682.
L'Union Médicale du Canada: Soixante-quinzième anniversaire (E) 215.
Manitoba Hospital Association 102. Montreal Medico-Chirurgical Society 224.

National Cancer Institute of Canada (E) 325.

Ontario Branch Canadian Cancer Society 224.

Osler Society of McGill University 571.

Physiological Society of the University of Toronto 225, 333, 334. Prince Edward Island Medical Society 102. Quebec Division of the Canadian Medical Association 682 Regina and District Medical Society 102, 683. St. Francis Valley Medical Society 571. Toronto Academy of Medicine 453, 573, 683. Toronto Medical Historical Club, N. B. Gwyn 218.

Toronto East Medical Association 684.
Upper Vancouver Island Medical Association Annual
Meeting 103.
World Health Organization 684.
World Medical Association 685.

OBITUARIES

Archambault, T. 347. Avard, Charles McQueen 236. Barnet, Albert Deans 461. Bateman, Richard Martin 347. Bayly, Benjamin Moore 236. Beaulac, Henri 113. Beaulieu, Claude 237. Bermack, Charles James 461. Bertrand, O. H. 237. Bourne, Charles Reginald 113. Broad, Robert S. 461. Brosseau, Aldéric 237. Campbell, Colin A. 585. Carmichael, Malcolm Alexander 694. Charlemagne, Baribeau 461. Childs, J. E. N. 237. Cleaver, Ernest Edgar 113. Costello, Wolfe Joseph 237. Côté, Léon 347. Coté, Paul 585. Craig, Kenneth Lee 113. Crang, Frank W. 694. Day, Frederick Brecken 113. Delisle, J. F. 585. DeWolf-Smith, William Andrew 585. Duguay, Léo 237. Dumais, Benoit 347. Duncan, J. H. 348. Edmison, Thomas Bickerton 462. Feilde, Edmund Gazelet 694. Fife, John Keith Munroe 585. Finn, James Joseph 462. Fleury, F. A. 348. Folger, Howard Price 113. Forrest, R. Franklin 462 Poster, Archibald Leslie 348. Poster, Lowell Shields 585. Gadbois, F. A. 586. Gaudreau, Stanislas 114. Gemmell, John 462. Gesner, David Henry 348. Gould, William J. H. 237. Graham, Wilfred Lamont 462. Grant, James Frederick 348. Hale, William 348. Hardisty, Richard Henry Moore 114. Harrison, Tilson L. 348. Hayes, C. E. 348. Hétu, Louis-Georges 462. Houston, Chester 114. Houston, J. Chester 586. Inksetter, William Elsworth 462. Irwin, Houston 114. Jackson, George H. 348. Jamieson, Alison 694. Jinchereau, Albert 114. Johnston, Samuel 694. Jones, David Ogden Roebuck 586. Kaiser, Newton Wilson 462. Kennedy, A. E. 237. Laffenr, A. J. 114. Lamothe, Louis Napoléon 348. Lane, Robert Tarzwell 694. Laporte, Joseph-Pierre 586. Legendre, Louis-Philippe 694. Leslie, Norman V. 348. McArthur, Neil Murray 586. McConville, Isabel 348.
MacDonald, B. Wesley 114.
Macdonald, James Orville 348.
Macdonald, James Ross 586.
McEachern, I. W. T. 462.
McFadden, Henry M. 694.

McGuire, William C. 237. MacKay, Malcolm Hugh 586. McKenty, John A. 586. Macklin, Alfred Hope 462. Maclean, Neil John 114. McLean, William Taylor 586. MacLeod, Murdoch Gordon 462. Marr, Delaski 237. Marshall, W. Alleyne 462. Martin, Ralph Graham 694. Mason, Edward George 349. Medd, A. E. 115.
Milroy, Thomas MacKetchie 462.
Morris, Samuel C. W. 586. Musgrove, William Wesley Lorne 349. O'Connor, Frederick James 462. Overholt, Joseph Edgar 462. Paquin, Elzéar 349. Paradis, J. A. 586. Penney, William George 463. Potvin, Arthur 237. Proctor, E. L. 694. Quesnel, Philippe 588. Rahner, Herman Richard 463. Raymond, Charles-Auguste 116. Reason, Henry Thomas 237. Redman, Lawrence V. 116. Riopelle, Joseph-Edouard 588. Rolls, Allison 694.

Roy, Salluste 349. Ryckman, Warren C. 695. Sampson, John Albertson 349. Scatchard, Walter 695. Scherk, Frederick H. 349. Scott, William Dixon 116. Sims, Herbert Leo 463. Singer, Bessie Thelma 350. Slater, A. J. 116.
Stevenson, William John 695. Stewart, Alvie Earl 463. Stewart, Donald Wilfred 588. Stoll, Edward Lovell 350. Straith, Peter Luther 23S. Stratton, C. Milton 116. Sullivan, Edward Vincent 350. Swencisky, Valerian 695. Trenholme, Gilbert Armitage 238. Tufford, Norman Grant 463. Turcot, Charles Edouard 350. Tyerman, Wesley Whitefield 350. Vesey, Euston M. 463. Wallace, Norman Clyde 463. Weart, Aylmer J. 463. Williams, Gerald S. 238. Winkler, William N. 588. Woodbury, Frank Valentine 463. Wylde, Charles Fenwick 116. Yule, William Lorne 464.

The Canadian Medical Association Journal

Vol. 56 June, 1947 - No. 6

GLOBIN INSULIN-

I. M. Rabinowitch, D.Sc., M.D., F.R.C.P.[C.], A. F. Fowler, M.D., E. H. Bensley, M.D., A. L. Gordon, M.D., F.R.C.P.[C.] and Marjorie Mountford, B.Sc.

Montreal, Que.

THE purpose of this communication is to report our experiences with globin insulin in the treatment of diabetes mellitus in this Clinic since June, 1944. Publication until now was purposely postponed because of (a) the need of definite proof that globin insulin is capable of serving a purpose for which the presently available insulins, either by themselves or in combination with each other, fail; and (b) the limited significance which is to be attached to a small number of cases and short-period observations because of the many factors which may influence the response to any type of insulin not only in different individuals but in the same individual at different times. A survey of the literature on globin insulin since the first report' clearly shows that small numbers of cases and short-period observations account to an appreciable extent for the conflicting conclusions.

OBJECTION TO ANOTHER FORM OF INSULIN

Addition of another type of insulin which would be no more effective than the two in common use at present, unmodified and protamine zinc, either by themselves or in combination with each other, would, in our opinion, not only not be warranted, but might actually do harm. Even with the two above-mentioned insulins presently in use confusion is not uncom-

from our experiences, even pharmacists at times, regard them as interchangeable.

NEED OF ANOTHER FORM OF INSULIN

and limitations, many patients, and. judging

Though each has its definite indications

A disadvantage of unmodified insulin is the need, in the severe cases, of three, and, at times, in very severe cases, four injections a day.

Protamine zine insulin (P.Z.I.) also has its limitations. A characteristic finding in cases of severe diabetes treated with P.Z.I. is the unreliability of the blood sugar in the fasting state as an indication of the degree of control of the diabetes. As is well known, in uncomplicated moderately severe cases, a single injection of P.Z.I. controls the hyperglycæmic response to the ingestion of food satisfactorily.2 In severe cases, however, or in complicated cases moderately severe only, control is very difficult. Though the blood sugar the following morning may be perfectly normal, or even well below normal, and thus suggest good control, the control during the greater part of the day, due to the meals, may actually be very poor. recent case is an example.

In this case (Hosp. No. 94/47) the diabetes was associated with slight cellulitis of a toe and, daily, for two consecutive weeks, the blood sugar was not only perfectly normal in the fasting state, but a number of times was well below normal. Thus 0.071, 0.080, 0.087, 0.047, 0.039, 0.087, 0.056, 0.082, 0.055, 0.116, 0.080, 0.063, 0.076 and 0.082%. In spite of this apparently very satisfactory control, however, the toe did not heal as rapidly as was expected. Consideration was, there fore, given to the possibility that, though the blood sugar was normal in the fasting state, it was high during the greater part of the day, particularly after meals. To test this, blood sugar estimations were made two hours after breakfast and two hours after breakfast and two hours after breakfast and two hours after lunch were 0.357 and 0.285% respectively. Further deceptive was the absence of sngar in the urine, due to the raised reual threshold for glucose common in such cases.

That another type of insulin is highly desirable is seen in the cases in which the diabetes is controlled much better with a simultaneous injection of unmodified insulin and P.Z.I. than

^{*} From the Department of Metabolism, the Montreal General Hospital, Montreal, Canada.

This work was done with the aid of a grant to the Committee for Research of the Montreal General Hospital from Messrs. Burroughs-Wellcome and Co. (The Wellcome Foundation Ltd.).

The necessary supplies of globin insulin were made available through the co-operation of Messrs. Burroughs-Wellcome and Co. and the Connaught Laboratories of the University of Toronto.

with unmodified insulin alone or P.Z.I. alone. To obtain uniform results, however, in our experience, it is necessary to employ separate syringes and inject each insulin in a separate part of the body. Peck's mixtures,3 in our experience, have not proved satisfactory, fitting in with carefully controlled tests in animals. However, even with this form of treatment, the results are by no means uniformly satisfactory in severe cases, the fasting blood sugar being as deceptive as with P.Z.I. alone. The unmodified insulin may control the hyperglycæmic response to the ingestion of the morning meal. Its action, however, in severe cases is not sufficiently prolonged to control the blood sugar after the noon and evening meals. The result is marked hyperglycæmia during the greater part of the day, and, though opinions differ as to the harm of a high blood sugar, the consensus, both clinical and that based upon animal experimentation, points to definite harm.

An advantage of globin insulin, therefore, appeared to be that, though its action is slower than that of unmodified insulin, it is more rapid than that of P.Z.I. Acting more rapidly than P.Z.I., it should more effectively control the hyperglyeemic response to the ingestion of food. The extent to which it would control the blood sugar during the remainder of the 24 hours would depend not only upon the prolongation of its action, but, also, upon the severity of the diabetes. Therefore, in order to determine the exact place of globin insulin in the treatment of diabetes mellitus - indications and limitations - it was decided to investigate it on a scale similar to that which we had employed in our evaluation of P.Z.I. and other mixtures of zine and insulin.4, 5, 6, 7, 8

PRELIMINARY STUDIES — UNCOMPLICATED, AMBULATORY DIABETICS

Selection of subjects.—For the preliminary study, it was decided to restrict the observations to private office patients. As is well known, for economic reasons, private patients are more likely to follow treatment carefully than those who attend out-door clinics. The cases were also restricted to (a) those in whom there were no known associated conditions to interfere with the action of insulin, and (b) those who had been under observation for a period of no less than two years. The control of the diabetes in these cases with the other forms of insulin was, therefore, well known.

Blood sugar tests.—In view of the above observations on the unreliability, at times, of the blood sugar in the fasting state, estimations were also made three hours after meals. A summary of the experiences with the first 500 blood sugar estimations is shown in Table I.

Table I.

Showing Effects of Different Types of Insulin
Treatment upon the Blood Sugar in the
Fasting State and 3 hours After Meals

				Blood	sugar
No.	Insulin*	Dose (units)	Tests	Fasting a.m.	Post- prandial a.m.
1	PZI	50	10	132	169
	G-I	50	10	151	152
2	PZI	30	17	129	180
	G-I	30	17	160	150
3	PZI	35	11	118	193
	G-I ^	30	11	168	154
4	PZI	20	15	126	177
	G-I	20	15	160	146
5	PZI/UMI	20/10	10	113	156
	G-I	30	10	158	167
6	PZI/UMI	30/20	13	157	153
_	G-I	40	13	153	156
7	PZI/UMI	40/20	12	160	158
· ·	G-I	60	$\overline{12}$	163	156
8	UMI (b.i.d.)	20/15	10	132	137
•	G-I	35	10	165	150
9	UMI (b.i.d.)	30/20	16	148	163
•	G-I	50	16	168	164
10	UMI (b.i.d.)	35/10	$\overline{12}$	137	135
	G-I	40	12.	168	165

A.M. = Average blood sugar—mgms. per 100 c.c.

PZI = Protamine zinc insulin.

G-I=Globin insulin
PZI/UMI=Simultaneous injection of protamine zinc
insulin and unmodified insulin, with

separate syringes and in separate sites.

UMI (b.i.d.) = Unmodified insulin before breakfast and
before evening meal.

It will be noted that in all of the four cases in which the effects of globin insulin were compared with those of P.Z.I., the average degree of control of the diabetes in the strictly fasting state was better with P.Z.I. than with globin insulin. On the other hand, the average degree of control of the diabetes in the post-prandial state was better with globin insulin than with P.Z.I.

In the three cases in which globin insulin was compared with the combination of P.Z.I. and unmodified insulin, the mixture was more effective than globin insulin in controlling the blood sugar in the fasting state in one case. In the two remaining cases, the globin insulin was as effective as the mixture of the two other insulins. This applied equally to the degree of control of the diabetes in the post-prandial state.

In all of the three cases in which a single injection of globin insulin was compared with two injections of unmodified insulin—one before breakfast and one before the evening meal—the two injections of unmodified insulin controlled the diabetes in the fasting state better than the single injection of globin insulin and also in two of the cases in the post-prandial state. In the remaining case, the average control of the diabetes in the post-prandial state was the same with both forms of treatment.

While the above-mentioned studies were in progress, our attention was drawn to a paper to be read at the meeting of the American College of Physicians by Drs. Roberts and Yater, of Washington, on "Comparison of the elinical use of protamine zinc insulin and globin insulin in equal doses". Drs. Roberts and Yater⁹ very kindly let us have their data which have since then been published, and they clearly showed that these authors had also made use of blood sugar estimations during the day as a means of determining the control of the diabetes in relationship to ingestion of food, rather than relying upon a single estimation of the blood sugar in the fasting state. From these data, it was obvious that further studies of a similar character in uncomplicated, moderately severe diabetics would serve no useful purpose in view of (a) the large number of cases which had been investigated by these authors and (b) the care with which the data had been obtained. These clearly indicated that in uncomplicated, moderately severe diabetics, globin insulin controls the diabetes in a more nearly normal way in more cases than an equal amount of P.Z.I. In Fig. 1 are reproduced the comparative blood sugar time curves obtained by Drs. Roberts and

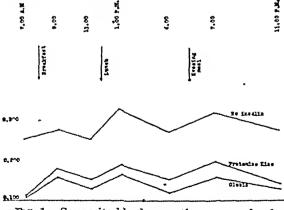


Fig. 1.—Composite blood sugar time curves showing influence of meals upon blood sugar in diabetics treated with P.Z.L., globin insulin and no insulin (Robert, J. T. and Yater, W. M.: Ann. Int. Med., 26:41, 1947.)

Yater in relationship to meals with globin insulin, P.Z.I. and no insulin.

STUDIES IN CASES REFRACTORY TO UNMODIFIED INSULIN AND PROTAMINE ZINC INSULIN

In view of the above observations, we decided to concentrate upon cases difficult to control, though uncomplicated, and upon cases in which the diabetes was associated with some other condition, surgical or medical, which tended to interfere with the action of insulin. It is in such eases that there is a great need for another form of insulin. A vicious circle results from these complications. The associated condition (heart failure, cellulitis, gangrene, etc.) interferes with the action of the insulin and, thus, results in poor control of the diabetes. This further aggravates the associated condition, because of the resultant poor nutrition and, this, in turn, still further interferes with the action of the insulin. It was, therefore, in such cases that an attempt was made to determine whether globin insulin by itself, or in combination with unmodified insulin or with P.Z.I., offers a more effective method of treatment and, thus, warrants the addition of globin insulin to the two other insulins now generally in use.

How difficult it may be, at times, to control the diabetes, because of the influence of the associated condition, particularly infection, in spite of all of the presently available measures may be seen in Fig. 2, in which is graphically recorded average blood sugar time curve of 65 such cases. In each case, in order to determine the effectiveness of the insulin administered. blood sugar estimations were made so as to show (a) the influence of the three regular meals of the day; (b) the influence of the between-meal feedings of carbohydrate with our high carbohydrate-low calorie diet; (c) the degree of control of the diabetes in the early part of the evening; and (d) the degree of control in the strictly fasting state. These 65 cases included a variety of uses of insulin, in the attempts to overcome the poor control of the diabetes, unmodified insulin every 8 hours and, at times. every 6 hours during the day; various combinations of unmodified insulin and P.Z.I. in the morning only: similar combinations in the morning, together with an injection of unmodified insulin or P.Z.I. in the evening, etc. In spite of all of these measures it will be noted that the control of the diabetes was not only poor during the day but that there was definite hyperglycemia even in the strictly fasting state. In diabetes complicated by gangrene, the incidence of amputations is raised, because of the resultant poor nutrition.

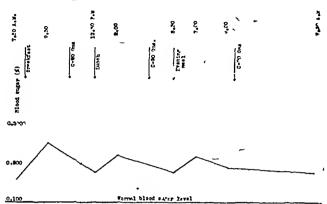


Fig. 2.—Composite blood sugar time curves based upon 65 curves showing effects of meals and betweenmeal feedings of carbohydrate upon blood sugar in cases of diabetes complicated by conditions which interfered with the action of insulin.

LIMITATIONS OF INDIVIDUAL CASES

Interesting and instructive as the experiences in individual cases may be, early in this investigation it became obvious that in the evaluation of globin insulin, as in the evaluation of the two insulins in use—unmodified insulin and P.Z.I.—limited significance only could be attached to the findings in any individual case, good, bad or indifferent, because of the many variables. The most reliable method would be to make a large number of blood sugar tests under different conditions, calculate the average blood sugar under each set of conditions and subject the average to the proper statistical tests to determine its significance. The following are examples of some of the pitfalls.

UNRELIABILITY OF NEW CASES

In new cases, though the diabetes may appear to be severe, judging from the degree of hyperglycemia and glycosuria, quite often it may be so readily controlled, regardless of the type of insulin employed, that the patient is able to discontinue the insulin before it is possible to compare it with any other form of insulin. Thus:

Hosp. No. 860/46. Associated condition: hypertension; blood sugar in fasting state, 0.312%; glycosuria. With 40 units of unmodified insulin, the diabetes was so improved that eventually (27 days later) the patient required no insulin. No opportunity was, therefore, afforded to test the effects of an equal amount of globin insulin.

Hosp. No. 2424/46. Associated condition: chronic myocardial disease with heart failure. Blood sugar in fasting state, 0.238%, glycosuria. In this case, treatment was instituted with 20 units of globin insulin once daily. Following recovery from the heart failure (21)

days later) the patient required no insulin. Here, therefore, no opportunity was afforded to test the effects of an equal amount of unmodified insulin or of P.Z.I.

Similar experiences were met with in surgical cases. Hosp. No. 1797/46: (fracture—dislocation of shoulder) is an example. Treatment was instituted with globin insulin; but, following the operation, the diabetes was well controlled without insulin. No opportunity was thus afforded to compare the globin insulin with the effects of a similar dose of any other insulin.

SELECTION OF SUBJECTS

In view of such experiences, this investigation was restricted as much as possible to those cases in which the degree of control of the diabetes in relationship to insulin dosage was well known for some time and in which, regardless of the form of insulin treatment—unmodified insulin alone, P.Z.I. alone, or combinations of unmodified insulin and P.Z.I.; whether administered in single doses; at 6 or 8 hour intervals; or in relationship to meals, etc.—the results were not satisfactory.

INFLUENCE OF STAGE OF ILLNESS ON THE ACTION OF INSULIN

Rigid adherence to the above selection would have excluded an opportunity to determine the value of globin insulin in many acutely ill cases. Where such cases were included, however, an important variable which had to be considered. was the fact that, regardless of the type of insulin employed, much better results were to be expected when the associated condition (infection, etc.) which interfered with the action of the insulin was under control than at the beginning of treatment. In such eases, therefore, no advantage was attributed to globin insulin unless, in spite of its use at the beginning of treatment, that is, at the worst stage of the illness, the results were either better than or as good as with the other forms of insulin treatment during the latter part of the illness or during the stage of convalescence.

STANDARDS OF CONTROL

Poor control.—The control of the diabetes was regarded as poor, when the blood sugar was above 0.150% in the fasting state or above 0.200% after meals, whether the urine was or was not free from sugar, because of the frequency of a raised renal threshold for glucose in such cases. For example, in a case associated with heart failure (No. 1115/46) though the urine remained free from sugar, the blood sugar in the fasting state ranged between 0.217 and 0.416%.

Fair control.—The control of the diahetes was regarded as fair only when the blood sugar was above normal but no higher than 0.150% in the fasting state and not above 0.200% after meals.

Good control.—The diabetes was regarded as under good control when (a) the urine was free from sugar (b) the blood sugar was perfectly normal in the fasting state and (c) the blood sugar was not higher than 0.180% after meals.

COMPARISON OF SINGLE DAILY INJECTIONS OF GLOBIN INSULIN WITH SINGLE DAILY INJECTIONS OF P.Z.I.

In such refractory cases as those selected for this study, good control has never been noted by us with a single daily injection of P.Z.I., though the blood sugar may have been normal in the fasting state. However, in a number of cases, in spite of the associated conditions, a fair degree of control of the diabetes has been noted, and, in some of the cases tested, equally fair control was obtained with globin insulin. Such eases, alone, however, would not justify the introduction of another type of insulin. The following are examples:

Hosp. No. 908/46. Associated conditions: arteriosclerosis peripheral neuritis. With P.Z.I., the average of nine blood sugars in the fasting state was 0.145%, and the average of a similar number of blood sugars, in the fasting state, with globin insulin was 0.143%. Hosp. No. 1234/46. Associated conditions: neurosphilis. Average blood sugar in fasting state with P.Z.I., 0.158%. With globin insulin, average blood sugar, 0.142%.

Comparison of Two Injections of Globin Insulin with Two Injections of P.Z.I.

In cases which required three injections of unmodified insulin daily, an attempt was made to reduce the number of injections by use of P.Z.I. twice a day, but the results were poor. An attempt was, therefore, made to replace the three injections of unmodified insulin by two injections of globin insulin, and in most cases in which the P.Z.I. failed, the globin insulin also failed. Here, therefore, there was again no justification for introduction of another form of insulin. The following is an example:

Hosp. No. 1856/46. Female, aged 55 years. Associated conditions: dermatitis; peripheral neuritis. On admission, the urine contained sugar and nectone bodies, and the blood sugar in the fasting state was 0.285%. With two doses of P.Z.I., the average blood sugar in the fasting state was 0.176%; with globin insulin, it was 0.209%; whereas, with the three injections of unmodified insulin, it was 0.149%.

COMPARISON OF SINGLE INJECTIONS OF GLOBIN INSULIN WITH THREE INJECTIONS OF UNMODIFIED INSULIN

Occasionally, however, it was found that three injections of unmodified insulin could be replaced by a single injection of globin insulin. Thus:

Hosp. No. 1115/46. Associated conditions: chronic myocardial disease with heart failure. With a single dose of globin insulin in the morning, varying between 45 and 60 units, the average blood sugar, in the fasting state, was almost exactly equal to the average blood sngar with 15 to 20 units of unmodified insulin three times a day. The average of the blood sugar in the fasting state with the globin insulin was 0.286% and that with the unmodified insulin was 0.283%. At this stage, it will be noted that the control with both globin insulin and unmodified insulin was poor. The purpose, here, however was merely to determine whether a single dose of globin insulin could control the diabetes as well as the same number of units of unmodified insulin, divided into three injections. The following cases are more suggestive of an advantage of globin insulin.

SUGGESTIVE ADVANTAGE OF GLOBIN INSULIN

Hosp. No. 3916/46. Associated condition: cellulitis of foot. In this case, the globin insulin was employed at the beginning of the treatment, that is, the worst stage of the illness, when the patient had a temperature of 102° F. In spite of the severe infection with fever, the blood sugar in the fasting state was reduced from 0.256 to 0.168% with a single daily injection of 30 units of globin insulin; whereas, later, when there was less infection and less fever, a better degree of control was obtained by use of unmodified insulin but with a total dosage of 40 units divided into three injections a day.

Hosp. No. 2428/46. Associated condition: ulceration of leg. In this case, though much better control of the fasting sugar was obtained with 40 units of unmodified insulin, divided into three injections, the average blood sugar in the fasting state, with a single daily injection of globin insulin, was reduced from that of 0.285% on admission to 0.168%. Here, also, the globin insulin was used at the beginning of the treatment, that is, at the worst stage of the illness; whereas, by the time the unmodified insulin was employed the ulcer was "clean and granulating well".

DEFINITE ADVANTAGE OF GLOBIN INSULIN

Hosp. No. 2174/46. Associated conditions: gangrene; suppuration of foot. In this case, the diabetes was brought under better control with 60 units of globin insulin, divided into two injections, than with a similar total dosage of unmodified insulin divided into three injections. Here, again, the globin insulin was employed at the beginning of treatment, when the suppuration and fever were at their maximum. During the treatment with globin insulin, the average blood sugar in the fasting state was 0.170% and, with the unmodified insulin, it was 0.169%.

Hosp. No. 8425/45. Associated condition: hypertension. A single daily injection of globin insulin controlled the diabetes practically as well as an equal total dosage of unmodified insulin into two injections a day. With the unmodified insulin, the average blood sugar in the facting state was 0.153%; whereas, with the globin insulin it was 0.136%.

Hosp. No. 5903/45. Associated conditions: cellulitis of foot; ostcomyclitis. A single injection of globin insulin was as effective as an equal total dose of unmodified insulin, divided into two injections a day. Before the first operation (incision of abscess), the average blood sugar in the fasting state with the numodified insulin was 0.164%, and, after the incision,

the average blood sugar was 0.140%. The incision, however, did not result in ultimate cure; there was still infection which required subsequent amputation of the affected toe. Suggestive, therefore, was the fact that, before the amputation, in the presence of the infection, the average blood sugar in the fasting state with a single injection of globin insulin was almost normal, namely, 0.127%.

Hosp. No. 8561/45. Associated conditions: gangrene; suppuration; amputation. In this case, the average blood sugar in the fasting state with unmodified insulin, divided into three injections, was 0.140% before the amputation of the toes, and 0.133% after amputation. The fever persisted however, and it was later necessary to amputate the affected leg. Before amputation of the leg, in spite of the fever, the blood sugar in the fasting state with a similar total dosage of globin insulin in one injection was 0.139%, and, after the operation, the average blood sugar was 0.154%.

Hosp. No. 1248/46. Associated condition: eczema. With 45 units of unmodified insulin, divided into three

Hosp. No. 1248/46. Associated condition: eczema. With 45 units of unmodified insulin, divided into three injections, the average blood sugar in the fasting state was 0.196%; whereas, with a single injection of 45 units of globin insulin, the average blood sugar was perfectly normal, namely, 0.110%. When the dosage of globin insulin was reduced from 45 to 40 units, there was a temporary increase of the blood sugar to 0.133%, but this also returned to the normal level of 0.113%.

INFLUENCE OF MEALS AND BETWEEN-MEAL FEEDINGS OF CARBOHYDRATE ON BLOOD SUGAR LEVEL

A limitation of the significance of all of the above data is the fact that the degree of control of the diabetes was judged by the blood sugar in the fasting state; whereas, as shown above, in spite of a normal blood sugar in the fasting state, the hyperglyeemie response to the ingestion of a meal may be very marked. Therefore, in order to compare the effectiveness of globin insulin with the control obtained with the other two insulins, either by themselves or in combination with each other, use was made of blood sugar time eurves, which showed the concentration of sugar in the blood in relationship to (a) the three usual meals; (b) the between meal feedings of earbohydrates; (c) the metabolism in the early part of the evening; and (d) in

Table II.

Time Relationship Between Ingestion of Food and Estimation of Blood Sugar

7.30 a.m	Blood test
8.00-8.30	Breakfast
9.30	Blood test
11.00-11.10	Between-meal feeding of COH*
12.30 p.m	Blood test
12.35-1.00	Noon meal
2.00	Blood test
4.00-4.10	Between-meal feeding of COH
5.00	Blood Test
5.35-6.00	Evening meal
7.00	Blood test
9.00	
9.30-9.40	Evening feeding of COH
7.30 a.m. (next day)	Blood test

^{*20} gm. carbohydrate

the fasting state the following morning. In Table II are shown the time relationships between the ingestion of food and estimation of the blood sugar.

The results may be briefly summarized by stating that not a single eurve conformed to the above-mentioned standards of good or even to fair control. Because of the associated conditions (infection, etc.) which interfered with the action of insulin, marked hyperglycemia, particularly after meals, was common. Of interest here, however, are not the absolute blood sugar values, but the variations from the basal level. The average findings of 50 such blood sugar time curves are graphically recorded in Fig. 3.

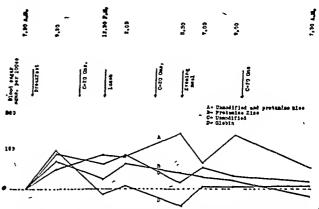


Fig. 3.—Composite blood sugar time eurves showing variations of blood sugar from basal (mgm. per 100 c.c.) during treatment with unmodified insulin, protamine zine insulin, numodified and P.Z.I. combined and globin insulin in cases complicated by conditions which interfered with the action of insulin.

It will be noted that the least variations oceurred with globin insulin. The three meals and the between-meal feedings of 20 grams of earbohydrates had no effect on the blood sugar, except after breakfast; whereas, there was a definite hyperglycemic response to the meals with unmodified insulin at 8-hour intervals, with single doses of protamine zine insulin and simultaneous injections of unmodified insulin and protamine zine insulin.

A possibility which had to be considered here was that, on the days these tests were done, the blood sugars in the fasting state were lower during the tests with globin insulin than with the other forms of insulin treatment. Therefore, with a better control to begin with, a lesser hyperglycemic response to the ingestion of food was to be expected. Analysis of the data, however, clearly showed that the average blood sugar in the fasting state was higher during the tests with globin insulin than with

all of the other forms of insulin treatment. In spite of this, however, the globin insulin controlled the blood sugar after the meals better than the other forms of insulin treatment.

COMBINATION OF GLOBIN INSULIN AND P.Z.I.

At this stage of the investigation, it will be noted that, though in isolated cases, globin insulin proved more satisfactory than unmodified insulin alone, P.Z.I. alone or combinations of the two, no appreciable advance had been made in the treatment of diabetes mellitus, complicated by conditions which interfere with the action of insulin. As in the preliminary studies in the ambulatory, uncomplicated cases, globin insulin appeared to control the diabetes better during the day by controlling the blood sugar following ingestion of food; whereas, P.Z.I., because of its slower action, served best in controlling the blood sugar during the night. It, therefore, occurred to us to try the effects of a combination of globin insulin and P.Z.I. in such eases, and it will be noted that the results have been very satisfactory and, thus, justify fully the addition of globin insulin to the two insulins.

Hosp. No. 3666/46. The first suggestion that such treatment might be beneficial was in a severe case of diabetes of 19 years' duration, complicated by an infection of the foot. To control the diabetes, with unmodified insulin, it was necessary to inject 20 units every 8 hours. With this method of treatment, the blood sugar was reduced to the normal level; but an equally satisfactory result was obtained with 30 units of globin insulin before breakfast and 30 units of P.Z.I. before the evening meal

the evening meal.

Hosp. No. 2310/40. Associated conditions: postoperative hypothyroidism; menopausal syndrome; thyroid therapy. This patient has been under our observation since 1940 and has followed treatment carefully,
but the diabetes has never been under satisfactory
control, possibly, to some extent, because of the neutralizing effects of the thyroid medication on the action of
the insulin. In spite of repeated hospitalization in the

attempts to improve the degree of control of the diabetes, marked hyperglycamia and glycosuria had been the rule rather than the exception, the blood sugars, in the fasting state, often ranging between 0.300 and 0.400% (on one occasion it was 0.525%) accompanied periodically by acetonnria.

In view of the above-mentioned experiences with globin-insulin in the morning and P.Z.I. in the evening, she was re-admitted to the hospital on June 4, 1946, and, on this admission, the blood sngar in the fasting state was 0.222%. With (a) the same diet, (b) no change in the dose of thyroid, and (c) with the same total number of units of insulin, but with 20 nnits of globin insulin in the morning and 10 units of P.Z.I. in the evening, except for the glycosuria the day following admission, the urine remained free from sugar throughout her entire period of observation in the hospital, and the blood sugar remained perfectly normal.

Hosp. No. 2672/46. Associated condition: peripheral neuritis. When this patient was first seen in June, 1946, she brought with her all of her past records which indicated numerous admissions to various hospitals for control of the diabetes without appreciable success. in the above-mentioned case, hyperglycæmia and glyco suria were the rule rather than the exception, and, when she was first seen by us, the blood sugar, in the fasting state, was 0.400%, and the nrine contained sugar, acetone and diacetic acid. At the beginning of treatment with 15 units of unmodified insulin at 8-hour intervals, the blood sugars in the fasting state on the first two days were 0.234 and 0.241% respectively and the urine contained, approximately, 40 grams of sugar per day. With no change of total insulin dosage, but with 30 units of globin insulin in the morning and 15 units of P.Z.I. in the evening, the urine was immediately rendered free from sugar and the blood sugar was re duced to the perfectly normal level. The subsequent nine blood sugars, during the next two weeks, were all within the normal limits, 0.095, 0.095, 0.096, 0.076, 0.066. 0.080, 0.094, 0.069 and 0.074%, and, except for one day when she had a "cold", all of the urines were free from sugar. Accompanied by this marked improvement from the laboratory point of view, there was a general improvement in the physical condition; the pallor, fatigue, nocturnal frequency, etc. all disappeared, and there was also a definite improvement in the neuritis.

Most Significant Single Case

Hosp. No. 527/23. Associated conditions: diabetic cord bladder; cystitis with marked pyuria. This man has been under our observation for over 23 years. During this long period, he has paid careful attention to his diet, and, for the purpose of periodic examination, has been admitted to the hospital fifteen times.

The diabetes became difficult to control when he developed cystitis with pyuria early in 1944, as a result

TABLE III.

EFFECTS OF DIFFERENT FORMS OF INSULIN TREATMENT UPON THE BLOOD SUGAR IN A CASE OF
CYSTITIS WITH PYURIA DUE TO A DIABETIC CORD BLADDER

			Blood sugar (mgm. per 100 c.c.)					
	77 . 1		21				No	rmal
Admitted	Hospital No.	Insulin*	Number of tests	Max.	Min.	Average	No.	%
April 28/44	1389/44	(UMI/PZI) (UMI b.i.d.) (UMI q.S.h.)	22	395	076	185	~	31.8
Nov. 2/44	3422/44	(UMI/PZI) (UMI t.i.d.)	14	272	070	173	3	21.4
May 15/45	1605/45	UMI/PZI	10	330	080	144	6	60.0
Oct. 28/45	3509/45	UMI/PZI	14	42S	070	248	3	21.4
May 16/46	1779/46	GI - O - PZI	13	335	050	110	10	76.9
Nov. 25/46	4174/46	GI - O - PZI	9	295	060	115	S	88.8

^{*}UMI/PZI = Simultaneous injection of unmodified insulin and protamine zinc insulin.

UMI b.i.d. = Unmodified insulin before breakfast and before evening meal.

UMI t.i.d. = Unmodified insulin before breakfast, noon and evening meal.

UMI q.8.h. = Unmodified insulin at 8.00 a.m., 4.00 p.m. and midnight. GI - O - PZI = Globin insulin in morning and protamine zinc insulin in evening.

of a diabetic cord bladder. As the pyuria became more and more resisfant to treatment, the diabetes became progressively more difficult to control, until unmodified insulin alone, P.Z.I. alone and different combinations of both forms proved almost equally unsatisfactory. The first definite improvement was noted with globin insulin in the morning and P.Z.I. in the evening. The blood sugar data are briefly summarized in Table III.

It will be noted that though there is no difference between the maximum and the minimum blood sugars with any of the forms of insulin treatment, the average blood sugar during the two periods of treatment with the globin-P.Z.I. combination was normal, differing from all previous experiences, and that these were not accidental findings as a result of isolated very low blood sugars which had balanced very high blood sugars—that they reflected the *mode*—may be seen from the percentage incidences of normal blood sugars during the different periods of observation. It will be noted that, though the incidence of normal blood sugars was low with all of the other forms of insulin treatment, during the two periods of treatment with globin insulin and P.Z.I. combined, it was 76.9 and 88.8% respectively.

The above findings, however, also refer to the blood sugar in the fasting state and, thus, afford no indication of the degree of control of the diabetes throughout the 24 hours. That the combination of globin insulin and P.Z.I., however; resulted in a much more satisfactory control of the diabetes than all of the previous methods of insulin treatment is clearly seen in the blood sugar time curves graphically recorded in Fig. 4. Except for cases of coma, this case is one of the most difficult cases we have ever had to treat. It will be noted, however, that, though the results were by no means perfectly satisfactory, according to the abovementioned standards, they were far better with this new method of treatment than with any other previously attempted: Again, it will be noted that though the curves were lower with the combined globin insulin and P.Z.I., in neither case was the blood sugar in the fasting state the lowest on the day of the test.

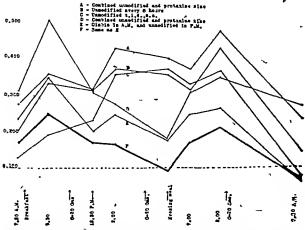


Fig. 4.—Showing degree of control of diabetes in relationship to meals and between meal feedings of carbohydrate during treatment with different forms of insulin in a case complicated by cystitis with pyuria which interfered with the action of insulin.

TABLE IV.

SHOWING DIFFERENT ATTEMPTS TO CONTROL THE DIABETES IN CASES COMPLICATED BY CONDITIONS Which Interfered with the Action of Insulin

- 1. Unmodified insulin before breakfast and before the evening meal.
- 2. 'Unmodified insulin at 8-hour intervals.
- 3. Protamine zinc insulin once a day.
- 4. Protamine zinc insulin before breakfast and before the evening meal.
- 5. Simultaneous injection of unmodified insulin and protamine zinc insulin in separate syringes and in different sites.
- 6. In addition to simultaneous injection of unmodified insulin and protamine zinc insulin as described above, unmodified insulin before the evening meal.
- 7. In addition to simultaneous injection of unmodified insulin and protamine zinc insulin as described above, protamine zinc insulin before the evening
- 8. Globin insulin once a day.
- 9. Globin insulin before breakfast and before the evening meal.
- 10. Globin insulin before breakfast and protamine zinc insulin before the evening meal.

TABLE V.

Influence of Different Forms of Insulin Treatment Upon the Blood Sugar in the Fasting State and After Meals in Cases of Dialetes Mellitus Compli-cated by Conditions which Interfered with the Action of Insulin

	•	Bloc				od sugar			
			Fast	ing st	ate	<u> </u>	Post-prandial		
No.	Insulin	\overline{n}	M	SD	PEm	n	·M	SD	PEm
1	UMI a.c., b.i.d.	166	204	92.6	4.8	84	163	80.2	5.8
	UMI q.8.h. , PZI u.i.d.		143 133		4.1 5.1		121 247	74.6 97.4	
- 4	PZI b.i.d.	1	148	80.0	10.5	39	185	88.8	9.4
5 6	UMI/PZI UMI/PZI-O-	111	168	90.3	5.9	68	216	111.0	9.0
	UMI	36	165	76.3	8.5	21	243	98.7	14.3
7	UMI/PZI-O- PZI	14	128	79.5	14.4	17	222	90.3	14.7
8	GI u.i.d.		212	87.8	7.8		156	75.4	6.0
-	GI b.i.d.		159				166	83.9	9.3
10	GI-O-PZI	164	120	64.3	3.4	118	142	76.8	4,9

n =Number of tests

M = Mean (Average blood sugar-mgm. per 100 c.c.)

SD=Standard deviation.

PEm = Probable error of mean.

1=Unmodified insulin before breakfast and evening meal. 2=Unmodified insulin every 8 hours.

3 = Protamine zinc insulin before breakfast.

4=Protamine zinc insulin before breakfast and before evening meal.

5=Unmodified insulin and protamine zinc insulin simultaneously but in separate syringes and separate sites.

6=Same as (5) plus injection of unmodified insulin before evening meal.

7=Same as (5) plus injection of protamine zinc insulin before evening meal.

8 = Globin insulin before breakfast.

9=Globin insulin before breakfast and before evening. meal.

10 = Globin insulin before breakfast and protamine zinc insulin before evening meal.

LIMITATIONS OF INDIVIDUAL CASES

The above cases, however, though indicating satisfactory results, are, as stated above, not as significant as average values obtained from a large number of observations in a large number of cases. For such averages, therefore, from the many data which had been obtained under a variety of conditions, 1,500 blood sugar values were selected strictly at random, including estimations in the fasting state and after meals. Analysis of the data showed that they represented ten different methods of attempts to control the blood sugar in eases complicated by conditions which interfered with the action of, insulin. The ten different methods are shown in Table IV and the combined data are briefly summarized in Table V.

DISCUSSION OF RESULTS

A glanee at the average values of the blood sugar in the strictly fasting state and after meals shows that the use of globin insulin in the morning and P.Z.I. in the evening appeared to result in a better average control of the diabetes than with any of the other methods of treatment; the average blood sugar in the fasting state with this method of treatment was at the generally accepted upper limit of normality, namely, 0.120%, and the average degree of hyperglycemia after ingestion of food was no greater than in non-diabetics. (Blood sugar = 0.142%).

It will be noted that, (a) practically the same good result was apparently obtained in the fasting state by simultaneous injection of unmodified insulin and P.Z.I. in the morning and an injection of P.Z.I. in the evening; (b) almost as good a result with a single injection of P.Z.I.; and also (c) almost as good a result with unmodified insulin at 8-hour intervals. With a simultaneous injection of unmodified insulin and P.Z.I. in the morning and P.Z.I. in the evening, however, it will be noted that the average degree of control of the diabetes after meals appeared poor (blood sugar = 0.222%), fitting in with some of the eases mentioned previously, and that a still poorer control after meals was noted with a single injection of P.Z.I., also fitting in with some of the eases mentioned previously. Equally good control, both in the fasting state and after meals, was apparently the case with unmodified insulin at 8-hour intervals. An objection to this method of treatment, however, was that it necessitated an additional hypodermic injection. NOTE ON INTERPRETATION OF AVERAGE VALUES

Since the conclusions to be drawn from our experiences in this study were to be based upon average findings, rather than results in individual cases, it is necessary here to point out the manner in which these averages were to be employed. Perhaps, no other biological phenomenon emphasizes the need of care in interpreting averages than the average blood sugar in diabetes, because of the many possible variables which may influence it.

An average, it should be noted, is a representative value which, for a specific purpose, stands in place of numerous individual measurements; it is concentrated information, but it is also too simple; differences which are fundamental for correct interpretation may be covered up. For example, addition of a few measurements very high or very low may destroy its representative character. There are different kinds of averages-mean, median, mode, etc. The mean is the most widely known. By itself, however, it is not reliable. Its function is merely to establish a value from which to measure the dispersion or variability of individual eases. The extent to which it is significant must be judged by the number of individual values from which it has been calculated and the range within which these individual values occurred; the smaller the number and the wider the range, the less may the mean be relied upon. To indieate the extent to which it may be relied upon, the science of statisties has a number of guides. For example, in this study, because of the wide range within which the blood sugar values fell, in comparing the average blood sugar of one method of insulin treatment with that of another method, the significance which was to be attached to any difference noted between the means would have to be judged by the magnitude of the difference noted in relation to the magnitude of its probable error. With a difference between the means no greater than the probable error of the difference, it would not be possible to draw any conclusions. The difference noted might have been eausal, that is, due to the two different forms of insulin treatment, or it might have been entirely aecidental. With a difference three times its probable error, the findings would be more significant. It can be shown that, with such a difference, the odds against chance occurrence are approximately 22 to 1. With a difference ten times its probable error, the odds against chance are 65,000,000,000 to 1.

In view of the above observations, the first step with every mean value obtained in the fasting state and after meals with the different forms of insulin treatment was to determine its probable error. The results obtained are shown in Table V. The next step was to compare the mean obtained with every form of insulin treatment with that noted by treatment with the globin-P.Z.I. combination. The need of this statistical guide is clearly seen in the following examples:

It will be noted that the average difference between the blood sugar after meals with the eombination of unmodified insulin and P.Z.I. in the morning and unmodified insulin in the evening and the blood sugar with the same combination in the morning but P.Z.I. in the evening was 21 mgm. per 100 e.c. Actually, however, when judged by its probable error, this difference was found to be of no significance. Thus:

> Difference between means Probable error of difference 20.4 Difference

Probable error = 1.0

Odds against the occurrence of such a difference having been due to chance were even (1:1).

On the other hand, with the identical difference of 21 mgm, noted between the treatment with unmodified insulin at 8-hour intervals and the treatment with globin insulin in the morning and P.Z.I. in the evening, the odds against the occurrence of this difference having been due to chance were 11.6 to 1. Thus:

> Difference between means 21 Probable error of difference Difference = 2.6Probable error

By using the same method to test the difference noted in the fasting state between, (a) the average blood sugar obtained by treatment with unmodified insulin at 8-hour intervals; and (b) that obtained by treatment with globin insulin in the morning and P.Z.I. in the evening, namely, 23 mgm. %, it may be calculated that the odds against the occurrence of this difference having been due to chance were 267 to 1.

In Table VI are summarized the findings of comparison of results obtained by treatment with the globin-P.Z.I. combination with those

TABLE VI.

SHOWING SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE AVERAGE BLOOD SUGAR NOTED WITH EACH OF NINE DIFFERENT FORMS OF INSULIN TREATMENT AND THE AVERAGE BLOOD SUGAR BY TREATMENT WITH THE GLOBIN-PROTAMINE ZINC INSULIN COMBINATION

	,	Fe	usting .	slate	P	ost-pro	ndial
No.	Insulin	d	PEd	d PEd	d	PEd	$\frac{d}{PEd}$
1	UMI a.e., b.i.d.	84	5.9	14.2	21	7.6	2.8
2	UMI q.8.h.	23	5.3	4.3	21*		2.6
2 3 4 5 6	PZI u.i.d.	13	6.1	2.1	105.	8.5	12.8
4	PZI b.i.d.	28	11.0	2.5	43	10.6	4.0
5	UMI/PZI	48	6.8	7.2	74	10.2	7.3
٠.	UMI/PZI - O - UMI	45	9.1	4.9	101	15.1	6,7
7	UMI/PZI -		140		200	, , , , ,	F 0
0	O - PZI GI u.i.d.	92	14.8 8.5	0.5 10.8	80	15.5° 7.7	$\begin{array}{c} 5.2 \\ 1.8 \end{array}$
8	GI tt.i.d.	39	9.3	4.2	$\begin{array}{c c} 14 \\ 24 \end{array}$	10.5	2.3
					(

d =Difference between average blood sugar (mgms. per 100 e.e.)

PEd = Probable error of difference

*= The only ease in which the blood sugar was lower with the other froms of insulin treatment than with the globin-protamine zine insulin combination.

1 = Unmodified insulin before breakfast and before evening meal.

2 = Unmodified insulin every 8 hours.

- 3=Protamine zinc insulin before breakfast.
- 4=Protamine zine insulin before breakfast and before evening meal.
- 5 = Unmodified insulin and protamine zinc insulin simultaneously but in separate syringes and separate sites.
- 6=Same as (5) plus injection of unmodified insulin before evening meal. 7=Same as (5) plus injection of protamine zine insulin
- before evening meal.

8 = Globin insulin before breakfast.

9=Globin insulin before breakfast and before evening

obtained with each of the other nine different forms of treatment. Space does not permit a detailed discussion. Suffice it to say that, judging from the ratio of the difference between means to the probable error of the difference, it is clear that, in this group of cases, the best degree of control of the diabetes was obtained by use of globin insulin in the morning and P.Z.I. in the evening. In one only of the 18 different groups of data was the average blood sugar higher with the globin-P.Z.I. combination than with the other forms of insulin treatment. and, even here, the difference (21 mgm.) was not very significant, judging from the ratio of the difference to its probable error.

The combined data thus indicate that the addition of globin insulin is a distinct advance. Its addition to the presently available insulins for the treatment of diabetes mellitus is, therefore, fully justified.

REFERENCES

- REFERENCES

 1. REINFR, L., SEARLE, D. S. AND LANG, E. H.: Proc. Soc. Exp. Biol. & Med., 40: 171, 1939.

 2. RABINOWICH, I. M.: Canad. M. A. J., 41: 5, 1939.

 3. PECK, F. B.: Ann. Int. Med., 18: 117, 1943.

 4. RABINOWITCH, I. M.: FOSTER, J. S., FOWLER, A. F. AND CORCORAN, A. C.: Canad. M. A. J., 35: 239, 1936.

 5. RABINOWITCH, I. M.: Canad. M. A. J., 35: 11, 1937.

 6. RABINOWITCH, I. M.: FOWLER, A. F. AND BENSLEY, E. H.: Canad. M. A. J., 36: 561, 1937.

 7. Idem: Canad. M. A. J., 37: 105, 1937.

 7. RABINOWITCH, I. M.: Ann. Int. Med., 13: 385, 1939.

 9. ROBERTS, J. T. AND YATER, W. M.: Ann. Int. Med., 26: 41, 1947.

RÉSUMÉ

Une nouvelle forme d'insuline ne serait pas nécessaire si elle n'apportait quelque avantage aux insulines actuellement en usage. Or, il semble bien établi que l'insuline-globine comporte des avantages indiscutables. Il faut savoir que certains malades sont réfractaires à l'insuline non modifiée et à l'insuline protamine-zinc, et c'est déjà là une indication intéressante; il faut savoir aussi que le choix des sujets qui bénéficieront de l'insuline globine sera déterminé par toute une serie de tests préalables. On devra établir ensuite le temps optimum d'administration et apprécier les avantages de combiner les diverses insulines, sans oublier d'interpré-ter comme il convient les moyennes obtenues par l'expérience. Sur 9 façons de combiner les insulines, le meilleur contrôle du diabête fut obtenu par l'emploi de l'insuline-globine le matin et de l'insuline protaminezinc le soir. JEAN SAUCIER

THE USE OF LATIN AND THE METRIC SYSTEM IN PRESCRIPTION WRITING

Russell A. Waud, M.D.

London, Ont.

THERE is a growing feeling among medical men and pharmacists that the teaching of Latin prescription writing and the imperial system of weights and measures in medical schools should be discontinued. This has been under discussion in medical circles for a number of years and each time the matter has been left in abeyance or to a committee which has never acted.

In 1916 Fantus¹ pointed out the advantages of English over Latin in prescription writing. Since then a number of papers have appeared bearing on the subject. More recently Stehle² has made a plea for the abandonment of Latin in prescription writing and the imperial system of weights and measures. A letter in this Journal: brought a plea from the west protesting the use of Latin and the imperial system of weights and measures.

The main reasons put forward in favour of the use of Latin in prescription writing are as follows:

1. Latin is a universal language and therefore understood in a number of countries regardless

of the vernacular. In Europe a large percentage of prescriptions are written in Latin: our graduates going there are likely to experience considerable embarrassment if they are not familiar with Latin. Emigrants coming from Europe present Latin prescriptions to the pharmacists. A considerable number of foreign journals contain prescriptions written either wholly or partly in Latin.

- 2. Because Latin is a dead language, it is less liable to alteration than is English. As there is only one Latin official name for a given substance, confusion is less likely to occur: for example Aristolochia serpentaria always stands for the same plant wherever it is grown, while its English synonym, snake root, over a period of time has come to be applied to different plants in different localities.
- 3. Under certain circumstances it may be advisable not to let the patient know the nature of the drug. He may be under the impression that a certain drug is useless for his condition. yet when given he may do well on the particular drug. The possibility of future self medication must also be borne in mind. Sentiment, tradidition and habit are no doubt factors to be considered.

The main reasons advanced against the use of Latin are as follows:

- 1. Learning to write prescriptions in Latin places an unnecessary burden on the medical student who, with a large amount of subject matter to be learned is already overburdened This would apply especially to the student who has had no Latin in high school or college.
- 2. This is the day of manufactured ethical preparations designated by coined names by each manufacturer. This name is written in the prescription by the physician and usually has no Latin equivalent. As this is just as much a mystery to the patient as a Latin word the element of secrecy as a rule is preserved.
- 3. Our modern educational system leans toward factual knowledge with a maximum of efficiency. There is a popular opinion among the laity that Latin is used for secrecy rather than efficiency.

In order to determine the attitude of those chiefly concerned, inquiries were sent to Provincial medical licensing boards, the Canadian and Provincial medical associations, pharmaceutical associations, and justifuctors responsible for the teaching of prescription writing in medical schools. Quite a number of excellent replies were received from men who are well qualified to discuss the matter.

DIGEST OF REPLIES RECEIVED

Before discontinuing the teaching of Latin in prescription writing it would be necessary to obtain the approval of the Provincial licensing Boards. An expression of opinion was. therefore requested of them. From one cam'e the suggestion that the matter be left entirely optional, in which case it was felt that most of them would be written in English. This applied also to the use of the metric system of weights and measures. The registrar of another Provincefelt that because there is so little attention paid to the proper writing of prescriptions according to the pharmacopæia, it would seem a waste of time and energy to ask students to study a dead language that is apparently of no other service. Another stated that it is generally recognized, although regrettable, that the classics are losing ground in the field of education, and subjects having a reputation as being difficult are discarded by many pupils. Only a thoroughly efficient system of vocational guidance can overcome this selective education by immature children. He felt that the Latin abbreviations used in the directions constitute a convenience rather than a hindrance and suggested as a solution to the problem that we abandon the use of Latin in the body of the prescription and retain Latin or its abbreviations in the directions. This is a practice quite common among practising physicians at the present time.

Another registrar felt that we could quite properly continue to use Latin in prescribing unless and until some modern language has been agreed upon which could be used inter-Another stated that sentiment, nationally. traditions and habit enter into the question. He feels that tradition is or should be an important factor in the life of a profession and, that commercialism is all too rampant in the life of the present doctor. The educational effect of the study of Latin cannot be lost sight of and perhaps does something-to a student which cannot altogether be measured in terms He feels that our modern educaof utility. tional system leans toward factual knowledge rather than proper education of the mind to think rationally. Other registrars stated that the question of Latin in prescription writing is one to be settled by the Provincial or

Dominion medical associations and therefore referred the matter to them.

MEDICAL SOCIETIES

Some medical associations were of the opinion that it is for the universities to decide the method necessary to establish uniformity in prescription writing. Others felt that the time has not yet arrived to make a change and that they would rather stay with the Latin.

PHARMACISTS

A keen interest was taken in the problem of Latin prescription writing by the pharmacists, particularly those engaged in teaching. In the Maritime area it is felt that for many years pharmacists will be called upon to dispense not only prescriptions written in Latin by the older practitioners but also prescriptions coming from overseas where Latin is still in use. It. was stated that not only is Latin cultural in itself but it still fills an important place in many instances in prescription writing.

In the French speaking area they are not in favour of any movement tending to abolish the use of Latin either in prescription writing or in the designation of pharmaceuticals. Latin being a dead language ensures the permanence of the expression.

From Ontario came many valuable sugges-One man in particular with long and valuable experience in teaching pharmacy gave his personal views which included many good reasons why the use of Latin should not be discontinued. He pointed out that Latin prescriptions are universally understood, Latin abbreviations are useful as a sort of shorthand, for various reasons it is not well for the layman to know the names of drugs prescribed for him. Latin prevents those who allow their presumpttion to exceed their knowledge from doing Writing an order in "street" prescribing. English is almost equivalent to giving the patient a labelled sample. Unless prescriptions are properly written for pharmacopæial combinations he feels that we will have the whole public practising medicine. On the other hand the personal opinion expressed by one experienced in the education of students of pharmacy in one of the western Provinces is that both Latin and the imperial system of weights and measures should be discarded in prescription writing in favour of English and the metric -system.

A representative of the Ontario Retail Druggists Association expressed the opinion that the use of Latin in prescription writing can hardly be said to apply to any of the reason's given for the use of Latin in prescription writing. He maintains that this is the day of manufactured specialties and proprietary medicine; designated by coined names by each manufacturer and therefore there is little use left for Latin except in the writing of directions.

At the Canadian Conference of Pharmaceutical Faculties representing all schools of pharmacy in Canada the question was quite fully discussed at the annual meeting last August. The majority decision of the conference favoured the retention of teaching Latin prescription writing. The final decision was rather close. It is interesting that all schools from Manitoba eastward favour retention of Latin while those west believe Latin should be dropped.

MEDICAL SCHOOLS

Whether medical students will be taught prescription writing in Latin or in English or in both will depend to a considerable degree on the opinion of the instructors in charge, and this will be a large factor in determining the future trend in prescription writing.

At Dalhousie it is felt that the day of writing prescriptions in hieroglyphics or in a foreign language should have long since passed. As it is now, there is a growing tendency not to insist on Latin as a requirement for university registration, and its use in prescriptions throws an unnecessary strain upon those students who have not taken Latin in high school.

After a discussion with the instructors concerned, McGill reports that they have agreed that the compulsory use of Latin in the writing of prescriptions can no longer be enforced. A large percentage of present students have not had Latin either at school or college. Although a student who wishes to use Latin is free to do so the policy of teaching prescription writing chiefly in English has been adopted. It is insisted however, that the prescription must be written entirely in the language chosen.

At Queen's it is felt that we are in a transition period. Few students remember enough Latin to write correct case endings and make a terrific muddle out of the subscription. As a result the use of Latin and English is described and the students are told that they may use

whatever they please. Ninety per cent or more use English.

At Toronto little or no time is spent in teaching Latin. However, it is felt that Latin cannot be dispensed with in prescription writing even though the medical students use only abbreviations. As an international pharmacopæia is being planned it is impossible to avoid the use of Latin. In the department of therapeutics the students are allowed to write prescriptions either in Latin or in English, but they must know Latin names as indexed in texts and for international use.

Here at Western we have been teaching the students to write their prescriptions in Latin and insist on Latin until the later part of the eourse in pharmaeology at which time they are allowed to change to English if they so desire. We feel that in this way the student becomes able to read Latin prescriptions and if suffieiently interested can also write them. Some students and also their friends feel that their medical education has been sadly neglected if they are not able to write a prescription in Latin using the characteristic signs which go with it. With the use of a few simple rules for the formation of the genitive singular and a few subscription types, which they memorize, students find little difficulty in writing fair Latin prescriptions. Here the head of the Department of Medicine is strongly of the opinion that prescription writing should be in This makes it imperative that our Latin. students be familiar with Latin.

At Manitoba, Latin in full is insisted upon for half the prescription problems presented and recognized abbreviations for the other half: the same for directions except where specific directions to the patient for unusual technique are required, when English is used.

In Alberta where prescription writing is taught in the department of therapeuties. English is favoured in the directions and other parts of the prescription but not necessarily for the names of various ingredients. The Professor of Pharmacology himself is rather sorry to see the use of Latin discontinued but realizes that this is what is happening and one might as well accept it.

When the question "Are you in favour of discontinuing the teaching of Latin p tion writing in medical school before the delegates to the last

an Association of Medical Stuinterns four voted "yes" and seven /'no''. All were in favour of changing er to the metric system.

METRIC SYSTEM

Regarding the use of the metric system the pharmacists in general are in favour of it. Delegates to the Conference of Pharmaceutical Faculties were unanimous that teaching emphasis should be laid upon the metric system. In the Maritime College of Pharmacy the metric system is stressed but it is felt that students in the lower grades will have to be taught to think in this system in order that the adult may be capable of using the system without transposing. At this point it might be well to mention that from another source in the Maritimes comes the statement that very few of the pharmaeists have metric weights and measures. In the Faculty of Pharmacy of the University of Montreal it is felt that the metric system offers many advantages and is surely much preferable to the actual system. In the School of Pharmaey of the University of Saskatehewan they are quite ready to diseard the imperial system in favour of the metrie.

Medical licensing boards expressed various opinions regarding the metrie system. felt that it should be left entirely optional, others were in favour of increased use of the metric, while one member of the older school stated that there may be good argument in favour of the metrie system and that there could be no harm in knowing both.

From the medical schools came the general opinion that we should shift over to the metrie But because of the difficulties in putting in the change opinions differ as to how and with what speed it should be instituted. The metrie system must be presented but until the imperial is less used the latter must also be taught. In some schools a definite effort has been put forth to introduce the metrie system. It is difficult for a busy physician who for years has been thinking in terms of the imperial system to transpose all this and express it in the metric system. Metrie doses of new drugs have been accepted by the practising physicians including the older group, they have learned to think of these drugs in terms of the metric However, when one has been accustomed to thinking of the dose of a drug in the imperial system over a period of years

it is not easy to change. Of the younger men schooled in the metric system some will probably adhere to it, others will drift over to the imperial system to some degree at least due to their association with the older practitioners.

Discussion

As the situation stands at present four medical schools in the Dominion. Dalhousie, McGill. Queen's and Toronto have definitely arranged their course so that the emphasis is being placed on the writing of prescriptions in English. the same time the majority of these schools realize that Latin cannot be dispensed with entirely, at present, at least. One school. Alberta, is using Latin in the inscription (body) of the prescription only. Two schools, Manitoba and Western, are still insisting on Latin. is apparent that the change over from Latin to English prescription writing has definitely begun. Examining boards and medical associations are objecting very little if any, and at least a large percentage of the pharmacists will welcome it. As a matter of fact a survey of local pharmacies showed that in only 10% of prescriptions is the inscription written in Latin. Latin abbreviations in the directions, however, are used quite freely.

In regard to the wider use of the metric system here again a definite effort is being made to increase its use. The doses of the newer drugs are being expressed in the metric system. However, it is difficult and time-consuming to transpose doses of the older drugs learned and used for years in the imperial system over to the metric. Like all changes of this nature it will take some time for completion. However, it is gaining in favour and a good start has been made.

I wish to express my thanks to those who have kindly supplied the material for this survey and to the Council of the Faculty for their co-operation.

REFERENCES

- 1. FANTUS, B.: J. Am. M. Ass., 66: 1696, 1916 2. STEHLE, R. L.: Canad. M. A. J., 46: 463, 1942.
- 3. WAUD, R. A.: Canad. M. A. J., 55: 310, 1946.

In 1944, the average potency of penicillin was around 200 units per milligram, while today every lot is over 350 units per milligram and runs as high as 1,100 units in a milligram.

DEVELOPMENT OF AN ANASTOMOSIS BETWEEN THE CORONARY VESSELS AND A TRANSPLANTED INTERNAL MAMMARY ARTERY:

Arthur M. Vineberg, M.D. and Beverly L. Jewett, M.D.

Montreal, Que.

. THE human eoronary circulation has engaged the attention of investigators for a number of years and many attempts have been made to augment it. In 1935 Beek1 attempted to improve the circulation of the left ventricle by the suturing of a muscle graft to the surface of the heart. In 1937 O'Shaughnessy2 tried to bring arterial blood to the left ventricle by the suturing of the omentum to the ventricular muscle. More recently, Fauteux3 in 1940 introduced ligation of the vena magna eordis for this purpose. In 1946, one of us' described an anastomosis between the left internal mammary artery and the left coronary eirculation. This occurred in a dog 99 days after transplantation of the left internal mammary artery into the wall of the left ventriele. Since publishing the last report on this subject we have continued these experiments. The basic objective is to supply a fresh source of arterial blood to the heart museles. In order to do this the left internal mammary artery has been partially removed from its normal position on the chest wall and implanted into the myocardium of the left ventricle. In this way it was thought that a communication might be developed between the implanted internal mammary artery and the left coronary circulation. Three technical variations of this procedure have been employed which have been designated as Experiments A, B and C. respectively.

Experiment A. — The internal mammary artery was tied at its distal end between two ligatures and cut. The free end was drawn through a previously prepared tunnel in the wall of the left ventricle and fixed in this position.

Experiment B. — The internal mammary artery was not cut but freed from its bed in its

central portion. A slit was made in the wall of the left ventricle and the artery slung into the wound where it was held by a free pleural graft, or by sutures.

Experiment C.—The vena magna cordis and the anterior descending branch of the left eoronary artery were tied. The internal mammary artery was sutured into the wall of the ventriele as in Experiment B.

RESULTS (SEE TABLE I.)

The results obtained in Experiments B and C were uniformly poor and will not be discussed here. This report will be confined to a description of the results obtained in 10 dogs treated as described in Experiment A. These animals were killed at the end of three or four months. In addition there are 17 animals which had the internal mammary artery transplanted into the left ventricular wall-according to the technique described in Experiment A, which are still alive and many of these were operated upon more than a year ago. It is too early in this work to discuss morbidity or mortality statistics.

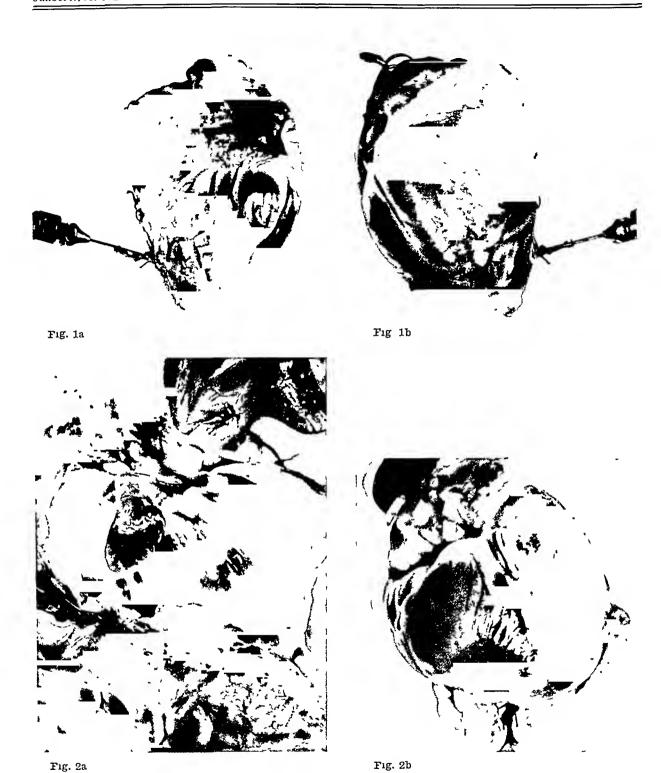
(a) Anastomosis between the transplanted left internal mammary artery and the left coronary vessels.—Of the 10 dogs killed, 2 or 20% showed a definite communication between the left internal mammary artery and the left coronary circulation. The first of these dogs. 8A. was killed 99 days after operation. The heart was removed from the thorax along with the attached left internal mammary artery. artery was injected with pink Schlesinger's solution and the entire left coronary tree was filled (see Figs. 1a and 1b). Note that only the vessels of the left ventricle were injected and that no injection fluid entered the right coronary tree. The injection fluid flowed out of the coronary orifices into the aorta and then into the ventricular lumen. In order to obtain an x-ray of the injected vessels it was necessary to tie the left eoronary orifice and then introduce the injection fluid. By this means, x-ray pictures were taken which showed elear outlines of the eoronary vessels in the left ventricle (see Fig. 3).

Sections were taken through the site of implantation of the left internal mammary artery into the wall of the left ventriele. They showed three definite openings in the wall of the implanted internal mammary artery; these appeared to be vessels and were traced from the internal mammary artery out into the myo-

This work was assisted by a grant-in-aid from the Division of Medical Research of the National Research Council and was done in the Department of Surgery, Royal Victoria Hospital and in the Departments of Physiology and Experimental Surgery, McGill University, Montreal.

TABLE I.

					Table I.	<u> </u>
Dog lab. No.	Duration of implant	Cause of death	Injection medium	Condition of internal mam- mary artery	Structures vaseularized by transplant of internal mammary artery	Evidence of an anastomosis between the transplanted internal mammary artery and the left coronary circulation
8A	99 days	Killed `	Schlesinger's solution. Pink	Patent throughout	Left coronary artery	1. Injected medium filled the left coronary vessels and flowed into the aorta (Fig. 1) 2. X-ray evidence of filled coronary tree (Fig. 2) 3. Serial sections taken through the area of transplantation showed definite anastomotic channels (Fig. 3, a, b, c)
47	S9 days	Killed	Schlesinger's solution. Blue	Patent throughout	Left coronary artery. Intercostals 3, 4, 5. Pericardial vessels	 Injected medium filled the left coronary circulation (Fig. 4, a, b) X-ray showed left ventricle filled with a radio-opaque mass due to failure of tying off the left coronary orifice Section.
3A	46 days	Killed	Barium sulphate	Patent throughout	Intercostal vessels. Left coronary artery?	 Pulsations transmitted to the area anastomosis through the injected medium. Presence of injected medium in ventricular lumen demonstrated by x-ray.
31	132 days	Killed	Gross solution	Patent to within ¾" of entrance into heart	Intercostal vessels 3 to 5 inclusive	1. Gross solution present in intercostal vessels which had previously been detached from the internal mammary artery
34	110 days	Kılled	Gross solution	Patent down to area of, scar and beyond	Intercostal vessels 3 and 4	1. Intracardiac segment of the trans- planted artery showed three visibly patent lumina
35	S6 days	Killed	Gross solution	Patent al- though it had pulled away from the heart	Intercostal vessels and pericardial vessels	 Visible evidence of an injected chest wall and pericardium. X-ray visualization of pericardial vessels.
39	92 days	Killed	Gross solution	Patent to scar and beyond scar to heart. Narrow lu- men within the heart	Intercostal 4 and 5	1. Visible evidence of injection medium in newly formed intercostal vessels.
6A	89 days	Killed	Schlesinger's solution	Patent throughout		1. No proved anastomosis.
41	89 days	Killer	Gross solution	Artery patent to kink 1" prox. to heart. Thrombosed beyond this point		1. Visible evidence of injection medium in newly formed intercostal vessels.
43	93 days	Killed	d Gross solution	Artery kinked ½" prox to heart. Patent to this point. Partially revascularized thrombus be yond this site.	•	1. No proved anastomosis.



Figs. 1a and 1b—Show the heart of a dog killed 99 days after the left internal mammary artery had been implanted in the wall of the left ventricle. The internal mammary artery has been injected with pink Schlesinger's solution. Note that the vessels of the left ventricle only have been filled by the injection fluid

Fig. 2a.—Shows a cannula in the left internal mammary artery 89 days after the artery had been implanted in the wall of the left ventricle. Note that the injection fluid has flowed down the artery into the left coronary circulation and out into the pulmonary vein. It has also flowed into the chest wall.

Fig. 2b.—Shows dog 47 with the heart removed from the thorax. It demonstrates that only the left coronary vessels were injected, to the complete exclusion of the vessels of the right ventricle



Fig.-3.—Shows x-ray of the left coronary tree which has been filled by injecting the left mammary artery 99 days after it was implanted into the left ventricular wall.

cardium (see Figs. 4a, 4b and 4c). Note that the internal mammary artery at the end of 99 days is lying in the myocardium of the left ventricle and has a completely patent lumen. The only change observed in the arterial wall is that of minimal intimal thickening.

The second dog, 47, was killed at the end of 89 days. The heart was left in situ and a can-

nula inserted into the left internal mammary artery well distal to the point at which the artery had been previously freed. The vessel was injected with blue Schlesinger's solution at a pressure of 120 mm. of mercury. The injection fluid flowed down the internal mammary artery and the left coronary vessels were seen to fill immediately as did the pulmonary vein. Simultaneously, intercostal vessels 4 and 5 on the left side were injected (see Fig. 2a). The heart and its attached internal mammary artery were then removed from the thorax and it was observed that only the left coronary vessels were injected, to the complete exclusion

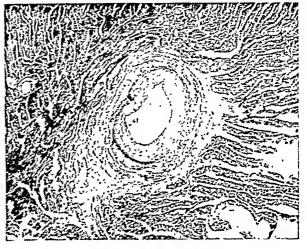


Fig. 4a

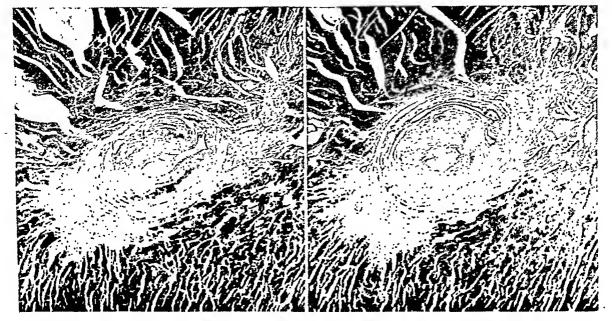


Fig. 4b Fig. 4c

Fig. 4.—Shows the transplanted internal mammary artery lying within the muscle of the myocardium at the end of 99 days. Note that the only change to be observed is a thickening of the intima. (a) It will be noted that in the upper portion of the section there is an indentation which is the beginning of a branch. (b) Shows the internal mammary artery with the branch well developed. (c) Shows a branch of the internal mammary artery lying along side of the parent vessel.

No. of

of those of the right ventriele (see Fig. 2b). Sections were taken through the site of implantation and showed a well-injected internal mammary artery—serial sections are now being made.

(b) Patency of transplanted internal mammary artery (see Table I).—In 8 of 10 animals the internal mammary artery became partially adherent to the chest wall in its former bed. Distal to this the artery was free for a distance of a half to one inch before entering the heart. A constricting scar developed at the junction between the free arterial portion and that part of the artery which re-adhered to the chest wall. The artery was patent throughout in 5 animals and was patent to the site of the sear and beyond it in 2 animals. In 3 dogs it was patent to the site of the scar but thrombosed beyond it (see Table II).

TABLE II. PATENCY OF TRANSPLANTED INTERNAL MAMMARY ARTERY

Condition of transplanted internal

d	dogs	mammary artery				
-	5 2 3	Patent throughout. Patent to the site of the scar and beyond. Patent to the site of the scar but thrombosed beyond.				

(c) Ability of transplanted internal mammary artery to form an anastomosis with vessels of surrounding structures.—In 9 of 10 animals the internal mammary artery after transplantation revascularized the surrounding structures. two instances there was an anastomosis with the left coronary vessel. In the 5 animals in whom a constricting scar formed, the artery proximal to this area developed communications with the ehest wall and intereostal vessels of the left side. This occurred in spite of the artery having been, originally, completely disconnected from its habitual vascular bed. 1 animal, where the artery had pulled out of the heart, a communication was developed between the artery and the vessels of the ehest wall and the pericardium.

Summary

A transplanted vessel, internal mammary, when placed in contact with another vascular bed will develop a communication with the vessels of that vascular bed, left coronary artery, pericardium and intercostal arteries.

CONCLUSION

The left internal mammary artery, after implantation into the left ventricular wall, formed

a communication with the circulation of the left coronary vessels. The frequency of this would appear to depend upon the formation of scar tissue around the transplanted internal mammary artery. Work is now in progress to attempt to diminish the frequency of this scar formation.

The publication of the illustration in colour has been made possible by the generosity of Mr. Nathan Cummings, of Chicago, Ill.

Thanks are due to Mr. T. Ritchie for his valuable

assistance.

REFERENCES

- 1. BECK, C. S.: Ann. Surg., 102: 801, 1935.
- 2. O'SHAUGHNESSY, L.: The Lancet, 1: 185, 1937.
- 3. FAUTEUN, M.: Surg., Gyn. & Obst., 71: 151, 1940. 4. VINEBERG, A. M.: Canad. M. A. J., 55: 117, 1946.

RÉSUMÉ

Les auteurs font un exposé de leur travail experimental en tentant de développer l'anastomose entre l'artère mammaire interne et les vaisseaux coronaires. Ce travail a été commencé l'an passé par le docteur Vineberg.

On a trouvé que l'artère-mammaire interne ainsi implanté a formé une communication avec la circulation des vaisseaux coronaires gauches en différent degré. Un facteur de cela a été la formation d'un tissu cicatrisé autour de l'artère transplanté. Des essais sont faits à présent pour en diminuer la fréquence.

MALIGNANT LYMPHOMA: CUTANEOUS SYMPTOMATOLOGY*

D. E. H. Cleveland, M.D.

Vancouver, B.C.

THE group of diseases formerly known as lymphoblastoma is now better known as malignant lymphoma. It is generally agreed that they spread by invasion or metastasis and that they terminate fatally. Their acceptance as neoplastic is gradually prevailing over the view long held in some quarters that they are of inflammatory origin. As yet however Warner,1 an authoritative British pathologist, prominently supports the opinion that Hodgkin's disease is inflammatory in nature, stating that it stands in an intermediate position between the granulomas and the neoplasms.

^{*}Read at the Seventy-seventh Annual Meeting of the Canadian Medical Association, in General Session, Banff, Alta., June 13, 1946.

From the Section of Dermatology, Department of Medicine, George F. Strong, M.D., Physician-in-Chief, Vancouver General Hospital.

The components of the malignant lymphoma group are variously given by different writers. Jackson,2 of Harvard, who has made very extensive studies and published much on the subject, listed them in 1939 as including lymphosarcoma, reticulum-cell sarcoma, follicular lymphoma, and Hodgkin's disease, which may appear as lymphoma (later called by him paragranuloma), granuloma or sarcoma. authorities include the leukæmias and myeosis fungoides. Gall and Mallory³ in 1942 proposed a purely cytological classification into finer subdivisions. As we are here concerned with the clinical aspects of well-defined entities presenting characteristic histological changes in the lymph nodes we will not dwell upon the histopathological aspects of the various members of the group.

The general tendency however has been to ignore the more obvious histological changes in the lymph nodes and to speak loosely of diseases characterized by lymphadenopathy without distinctive blood changes as Hodgkin's disease, and those with distinctive blood pictures as leukemia. The differences between the various diseases commonly referred to as Hodgkin's disease are nevertheless real. Clinical differentiation is frequently possible and the prognosis, course and treatment vary so widely between them that diagnosis should be made as carefully as possible.

Any or all structures may show the pathological disturbances characterizing the various members of the malignant lymphoma group. The symptoms and signs indicate the extent and variety of the sites involved. Autopsy findings disclose how widespread these may become, often without producing symptoms referable to an affected organ. The brunt of the attack may roughly be said to be borne either by the lymphoid structures as in Hodgkin's disease or follicular lymphoma, the hæmatopoietic structures as in leukæmia, or the skin as in myeosis fungoides.

In discussing Hodgkin's disease most writers do not omit to mention that the skin may present signs and symptoms such as erythema, urticaria, papules, nodules, excoriations, pigmentation, and, most frequently of all. pruritus. It is nevertheless astonishing to find some writers of general articles on the subject who not only ignore the existence of cutaneous signs and symptoms such as Warner' who states that "pruritus is not present in most cases", but say

that herpes zoster is present in approximately 30% of all eases of Hodgkin's at some stage of the disease. We believe that these statements do not accord with the observations of most dermatologists.

Our examination of the general medical literature shows that references to cutaneous lesions are extremely brief and sketchy, when they appear at all. Nowhere is the impression conveyed that Hodgkin's disease may persist for years giving rise to no conspicuous evidence of its presence except that furnished by the skin. The ehief purpose of this presentation is to emphasize the fact that such a phenomenon is by no means rare. Jackson's statement that "the association of bizarre skin lesions with lymphadenopathy should always arouse suspicion that one may be dealing with some form of malignant lymphoma" does not appear to have been sufficiently widely quoted or received the attention that such an important comment deserves.

Dermatologie writers, as may be expected. have given the greatest amount of attention to the cutaneous manifestations of malignant lymphoma. Ormsby and Montgomery' list very eompletely non-specific or toxic reactions and the specific or true neoplastic infiltrations of the skin. In our experience the non-specifie skin lesions are invariably pruritic, resulting in execriation, eezematoid changes and pigmentation. Specific lesions are uncommon but probably not as rare as usually supposed. Toxic reactions in the skin usually accompany the specific infiltrations, and the differentiation between the two types of skin lesions requires histological study, similar appearances being As Ormsby and Montproduced by both. gomery point out, from 30 to 50% of all eases of exfoliative dermatitis are lymphomatous in origin, and about one-third of all true lymphomatous infiltration of the skin appears as exfoliative dermatitis or universal erythrodermia.

The cutaneous manifestations in Hodgkin's disease are commonly so striking that they "steal the stage" (Fig. 1). The patient often has passed through many hands, his disease being variously diagnosed as eczema, contact dermatitis or exfoliative dermatitis. The medical attendants have been content to look no further than the surface, to make vague conjectures as to the cause of the symptoms complained of and ply symptoms

ment only. The symptoms wax and wane, for long periods the general health suffers little impairment and every treatment for a time seems successful.

Almost from the beginning a peculiar dusky redness, sometimes with a bluish or brownish cast, at first confined to the chiefly involved areas but gradually becoming general, should arouse suspicion when pruritus is present. In its incipiency the dermatitis may consist of a few fairly well circumscribed slightly clevated blotches a few centimetres in diameter, occasionally much larger, often progressing in a few weeks to a diffuse generalization over large parts of trunk and limbs. There may later be universal involvement from scalp to toes.

One of the earliest dermatological writers to emphasize the cutaneous changes which may occur in Hodgkin's disease was Cole.⁵ He gave pruritus as the commonest symptom, next a prurigo-like exauthen, and considered exfoliative dermatitis as rather rare. He observed urticaria in many eases, ordematous swelling, pigmentation, alopecia, dryness, atrophy of the skin and hyperkeratosis. He considered that 15 to 25% of all cases of Hodgkin's disease show skin involvement in some part of their course.

While we have frequently observed the transitory wheals of urticaria superimposed npon or accompanying the more persistent raised lesions, dermographism has not been found. There may be more or less excoriation. Vesicles and bulke have never been encountered. Profuse desquamation usually occurs in the universal involvements, while exudation which may also be general is more often confined to the lower extremities. Poikilodermia may be seen, in which ease the dusky red colour and bronzing become more conspienous. It is most commonly observed in the cases of generalized erythrodermia.

Pronounced and generalized thickening of the skin, usually with a diffuse lumpy consistency may also be seen. Progressive alopecia generally occurs together with thick subnugual deposits (Fig. 2). Ulceration is not common, but when present may show some resemblance to mycosis fungoides. We have not observed the large soft tumours commonly seen in mycosis fungoides. Itching is one of the most distressing symptoms, is often well-nigh uncontrollable and disproportionate to the visible amount of cutaneous involvement.

While we accept the view that mycosis fungoides belongs in the classification of malignant lymphoma, we do not consider it an overrefinement or irrelevant to insist upon making the distinction between mycosis fungoides and those eases of proved Hodgkin's disease which often so closely resemble it (Fig. 3). As Beerman6 has said recently with reference to mycosis fungoides, "if any case is definitely shown to be a entaneous manifestation of Hodgkin's disease or lymphosarcoma, it should so be named". Wile considers that the term mycosis fungoides should be restricted to a clinical entity rather than applied to a pathologic one. and that it may present any number of clinical pietnres. Lane, while apparently not fully sharing this view suggests that "a diagnostie test dose" of x-rays (about 50 to 75 roentgens) should be used in doubtful eases, stating that a lesion of myeosis fungoides is apt to resolve much more rapidly than any other of which he knows. In our experience the eases of proved Hodgkin's disease with skin lesions most suggestive of mycosis fungoides have been exceptionally resistant to radiotherapy.

If in generalized cases of dermatitis with etiology which cannot be determined definitely the superficial lymph-node areas are examined the findings indicating malignant lymphoma are striking. Large, elastie, freely movable, usually painless, discrete nodes, varying in size from a marble to a golf-ball will be found in the axillary, inguinal or femoral groups. Those of the inguinal groups are usually largest, and may feel as if moulded by pressure between museular and fascial planes into slightly clongated shapes like a coektail sausage. They are often so conspieuous that the patient has been well aware of them, although the medical attendant has ignored them, dismissed them as insignificant. or given some facile explanation.

The epitrochlear nodes are usually sufficiently enlarged to be readily palpable, while a few small discrete nodes may be discovered in the cervical areas. We have considered it notable and significant that the massive tumours above the clavicles commonly thought of as giving the typical picture of Hodgkin's disease (consult any popular illustrated textbook) have never been encountered in those cases in which entaneous lesions were the outstanding feature.

When the examiner has proceeded thus far in a ease presenting cutaneous signs and symptoms and lymphadenopathy as described his next step is clearly indicated. To persist in talking of eczema or exfoliative dermatitis and to say that the lymphadenopathy is accounted for by "absorption" from the skin is indefensible. As Jackson says, "Chronic enlargement of lymphnodes in an adult only rarely is due to inflammation alone, unless the eausative-effect is obvious. This generally is too often disregarded". A biopsy is imperative.

As in every other instance where biopsy is done, the site chosen is of prime importance. It would therefore seem almost unnecessary to state that a section of the involved skin alone The biopsy should be repeated as soon and as often as circumstances permit and justify.

A general physical examination and a complete blood-count are necessary. The blood-picture of Hodgkin's disease is not characteristic, but the count should be made once or twice before radiotherapy is started. Anemia and occasionally leukopenia found after radiation is commonly ascribed to the treatment, but we have often found low counts before the treatment and have occasionally found higher counts after the treatment than before. Counts practically normal have been found in the same



Fig. 1.—J.McB., aged 11. Hodgkin's. Dry. scaly, pigmented, infiltrated eruption, appearing first on hypogastrium. Died 2 years later with massive splenomegaly, intrathoracic and intra abdominal lymph adenopathy. Note massive involvement of axillary nodes. Fig. 2.—R.H. Hodgkin's Generalized nodular infiltration, ulceration, total alopecia, massive inguinal and axillary lymphadenopathy; chinically mycosisfungoides but ulceration and nodules radio resistant and histologically Hodgkin's of lymphnodes and skin. Died 2 months later. Fig. 3.—Wrs. P. Mycosis fungoides. Target area over sternum indicates site of treated tumour. Died 11 months later.

is insufficient. A lymph-node must be removed complete. It is undesirable and may be dangerous to remove only a portion. The largest available node should be selected. It is better to remove two or more. Removal of inguinal nodes has been objected to, but often the most readily accessible ones are in that region, and complications have not occurred in our experience more often than in axillary biopsies. In early cases it may chance that the first node removed does not show changes which the pathologist can identify as other than simple lymphadenitis.

patient both before and after radiotherapy, while it is admittedly not rare to find reduced counts after treatment. The most frequent finding has been moderate elevation of the white both before and after treatment. It is believed that the anæmia appearing subsequent to treatment, unless pre-treatment counts were normal and the post-treatment drop was sudden, is more reasonably ascribed to invasion of the bone-marrow by the pathological process of the disease than to damage by the radiotherapy. Eosinophilia has frequently been observed, and while it is not constant it often appears to be

directly proportionate to the extent and intensity of the skin involvement. Cole⁴ did not observe any close relationship between eosinophilia and pruritus, but believed that it occurred generally with a fresh glandular "flare-up".

In our eases the thorax has been examined routinely for evidence of mediastinal lymphadenopathy. Except in the terminal phases of a few eases we have not found radiological evidence of this in eases presenting skin lesions as the predominant feature. It has been elaimed that princitus in Hodgkin's disease is invariably an indication of nervous involvement by enlarged mediastinal or retro-peritoneal lymphnodes, but with the above-mentioned exceptions it has been found impossible to demonstrate such enlargement, although they all suffered more or less intensely from pruritus, and even at autopsy gross evidence of involvement of these groups has often been lacking. We believe that the toxic inflammatory skin changes in our eases have been sufficient to account for the pruritus.

It has also been stated that gross enlargement of the lymph-nodes in regions above the clavieles is a direct extension from similar conditions in the mediastinum. This has been contradicted by others. In our cases with maximal skin involvement it is noteworthy that we have never seen gross lymphadenopathy above the clavieles, and this runs parallel with our experience in the mediastinum. It is true that on a few occasions we have removed a small cervical lymph-node and found therein the characteristic histological picture of Hodgkin's disease.

It has been exceptional to detect splenie enlargement on clinical examination, and while there have occasionally been small temperature variations in the non-terminal phases, anything remotely suggestive of the Pel-Ebstein curve has rarely been observed.

Sutton and Sutton¹⁰ mention that the four cardinal diagnostic symptoms of Colrat—splenic and glandular hypertrophy, fever, pruritus and a blood-formula showing progressive anæmia, increasing leukocytosis, polynucleosis and eosinophilia—should always be borne in mind, and that diffuse exfoliative erythrodermia is rare. It is submitted from our studies of our own cases, as well as those cases of Hodgkin's disease collected from 10 years' records of the Vancouver General Hospital which were not notable for entaneous symptoms and signs, that the only one of

Colrat's quadruplet which is invariably present and essential to the diagnosis is the "glandular hypertrophy". We do not consider universal crythrodermia to be uncommon.

FOLLICULAR LYMPHOMA (formerly called giant follieular lymphoblastoma)

The first report on this side of the Atlantic of this disease was description of 2 eases by Brill, Baehr and Rosenthal in 1925.11 It is notable that while this disease was considered as lately as 1941 to be rare, Combes and Bluefarhi2 reporting then only 72 in the literature, to which they added another 15, our experience would indicate that it occurs nearly as often as the type of Hodgkin's disease with the ontstanding symptomatology being entaneous. The splenomegaly, the characteristic appearance of the nodes so studded with follicles that a diagnosis can often be made by a naked-eye examination of a stained section, and the exceptional radiosensitivity are also described by most authors as conspicuous characteristics.

It is remarkable that it is so rare to encounter any mention of entaneous evidences of follieular lymphoma. The clinical picture presented by the skin and superficial lymphnodes is in our experience identical with that which we have presented as occurring in a series of eases of Hodgkin's disease. We have been entirely unable to determine elinically whether we were dealing in a given ease with Hodgkin's disease or follienlar lymphoma. There have been no deaths in our series, which eovers a period of only 10 years, and no nodular-uleerative lesions have been observed. Otherwise there has been no significant difference between the two diseases in their elinical appearance and course.

Combes and Bluefarb¹² describe the cutaneous symptoms which they have observed in follicular lymphoma, to which clinical diagnoses had previously been given including contact dermatitis, exfoliative dermatitis, psoriasis, dermatitis herpetiformis, pityriasis rubra, mycosis fungoides, lenkæmia entis, Hodgkin's disease of the skin and arsenical dermatitis. Gall and Mallory³ state that entaneous lesions are unusual in this disease, and that pruritus is not observed. Symmers¹³ was the first to point out the relationship between crythrodermia and lymphadenopathy, not only in follicular lymphoma, but also in other malignant lymphomata.

Baggenstoss and Heek¹⁴ refer to the absence of anemia and cachexia in follieular lymphoma. and splenomegaly due to enormous enlarge-. ment of the Malpighian bodies. In our eases anæmia has been a variable feature in both Hodgkin's disease and follicular lymphoma, although constant and pronounced in late stages of the former disease. The same may be said of eachexia, which has been fairly severe in some cases of follieular lymphoma. We have ascribed the latter principally to exhaustion resulting from severe pruritus. Baggenstoss and Heek in their series of 13 eases make no mention of cutaneous symptoms, whereas in our series of 21 cases only 4 have occurred in which cutaneous symptoms were not prominent and, indeed, predominant,

Jackson^o referring to Baehr's findings of 12 splenomegalies in 19 cases states that it has been a less frequent finding in his experience. We also have found it uncommon. Jackson makes no mention of cutaneous involvement.

The records of the Vaneouver General Hospital covering a 10-year period ending December 31, 1945 disclose a total of 213 cases of malignant lymphoma proved by biopsy, autopsy or blood examinations, one or two or all three investigations having been earried out under the supervision of Dr. Harry Pitts, director of the Pathological Laboratories. Cutaneous signs and symptoms have been the predominating feature of the disease, nearly always the first to attract attention, in 64 (30.04%) of this number.

TABLE I.

Authenticated	Cutaneous
malignant lymphomas	features predominating
Hodgkin's disease 81	42
Follicular lymphonia. 21	17
Lymphosarcoma 29	2
Leukæmia 82	(lymphatic) 3
213	64 (30.04%)

It will be noted that over half of the cases of Hodgkin's disease and all but 4 of the follieular lymphomas have been cases with predominating eutaneous features, whereas such cases of lymphosarcoma and leukæmia have been rare, the latter group all being lymphatic leukæmia. The cases with predominating entaneous features have all been examined by us personally, and have included our own private patients, staff ward-patients and dispensary patients. In addition to eases with predominating entaneous features there have been examples of pruritus.

leukæmic infiltrations of the skin, herpes zoster, excoriations and pigmentation presenting as minor features. These have been fewer than we had anticipated.

Records of all eases with a recorded diagnosis of exfoliative dermatitis have also been examined, but none of these disclosed any suggestion of unrecognized malignant lymphoma, all having been otherwise accounted for. We believe that had time permitted, a similar search of all records of "eezema" might have been more revealing, because a majority of the eases which we have seen and authenticated by biopsy as malignant lymphoma had borne the diagnosis "eezema" for periods of months to years before the correct diagnosis was made.

TREATMENT

The only treatment shown to be of any value in malignant lymphoma is radiotherapy.* Regional radiation of areas of superficial lymphadenopathy has its advocates, as has also deep radiation of mediastinal and retroperitoneal masses, usually in combination with the former.

In our experience in the disease with predominating cutaneous lesions radiation applied to the whole body by what is known as "spray technique", giving daily minute doses to the entire body for 10 or 12 days, has given the best results in Hodgkin's disease and follieular lymphoma. This course may require one or more repetitions at intervals of 2 or more months. As mediastinal and retroperitoneal involvement have been observed in only a few of our eases in the terminal stages we have not found special attention to these areas required.

Special modifications of technique and variations of dosage to special areas, as in Hodgkin's sareoma, lymphosareoma, and the leukæmias, should be left to the radiologist to decide. Follicular lymphoma is generally regarded as highly radiosensitive. While this has often been found to be true, we have nevertheless encountered some eases which were exceptionally radioresistant, and this could not be accounted for by previous prolonged or repeated treatment.

^{*} This paper was completed in May, 1946, at which time, as far as I am aware, the beneficial although only palliative effects of the betaehlorethylamines (nitrogen mustards) in malignant lymphoma had not appeared in the available literature. This remedy has since been used in some cases of Hodgkin's disease in the Vancouver General Hospital, although not in any presenting the cutaneous manifestations discussed in this paper.—Author.

SUMMARY

Cutaneous lesions are referred to by most writers in describing diseases of the malignant lymphoma group, but with the exception of a few dermatologists, none have given the entaneous pieture the emphasis which it should have. As a result the general practitioner completely fails to appreciate the fact that in Hodgkin's disease and follieular lymphoma the chief presenting signs and symptoms may very often, and for prolonged periods, be exhibited solely by the skin. The true nature of these elironic skin eruptions thus repeatedly escapes recognition. Suffering may be severe and the treatment ordinarily employed is quite futile. diagnosis may often be followed by prompt relief or amelioration of symptoms as soon as radiotherapy is employed properly. Failure to examine the axillæ and inguinal regions in all eases of ehronie dermatitis, especially when of an eczematoid or exfoliative character, and failure to perform biopsy when lymphadenopathy is discovered is eulpable. It is the reason why so many sufferers from these diseases waste time and money in a fruitless search for relief.

I wish to express here my warm gratitude to Dr. Gordon McPhee, of the radiological staff, for his keen interest and help in searching the records of the hospital, a laborious and time-consuming piece of work.

REFERENCES

- WARNER, E. C., Brit. J. Dermat. & Syph., 56: 129, 1944.
- Jackson, H. Jr.: New Eng. J. Med., 220: 26, 1939.
 Gall, E. A. and Mallory, T. B.: Am. J. Path., 18: 381, 1942.
- ORMSBY, O. S. AND MONTGOMERY, H.: Diseases of the Skin, Lea & Febiger, Philadelphia, Pa., p. 806. 1943.
- 5. COLE, H. N.: J. Am. M. Ass., 69: 341, 1917.
- BEERMAN, H. AND INGRAHAM, N. R.: Am. J. Med. Sc., 211: 479, 1946.
- WILE, U. J.: Arch. Dermat. & Syph., (trans. Chi. Derm. Soc.), 45: 1209, 1942.
- Lane, C. G.: Arch. Dermat. & Syph., (trans. New Eng. Derm. Soc.), 51: 414, 1945.
- 9. JACKSON, H. JR.: Bull. Van. Mcd. Ass., 21: 269, 1945. 10. Sutton, R. L. and Sutton, R. L. Jr.: Diseases of
- SUTTON, R. L. AND SUTTON, R. L. JR.: Diseases of the Skin, The C. V. Mosby Co., St. Louis, p. 795, 1939.
- Beill, N. E., Bache, G. and Rosenthal, N.; J. Am. M. Ass., 84: 668, 1925.
- 12. Combes, F. C. and Bluefarb, S. M.: Aich, Dermat. d Syph., 44: 409, 1941.
- 13. SYMMERS, D.: Arch. Path., 26: 603, 1938.
- BAGGENSTOSS, A. H. AND HECK, F. J.: Am. J. Med. Se., 200: 17, 1940.

No research is ever quite complete. It is the glory of a good bit of work that it opens the way for something better, and thus rapidly leads to its own eclipse. The object of research is the advancement, not of the investigator, but of knowledge.—Mervyn Gordon.

TREATMENT BASED ON DIAGNOSIS DURING THE MENOPAUSE

Melville C. Watson, M.D., C.M.

Toronto, Ont.

THE ageing process in the ovary which results in diminished function of the gland is progressive during the late third, fourth and early fifth decade of a woman's life. The consequenees of this gradual natural ageing process are not eliaraeterized by any sudden definite elinical signs by which the onset, the course, or the end of the so-ealled age of menopause ean be clearly defined. The fact that an ageing process of equal significance begins in every other gland and every other tissue in the body at about the same time, should not be overlooked by the elinieian or the gynæeologist in his attempt to discover the eause of symptoms and signs during this period of life. The reproductive function is naturally arrested beeause age in tissues apart from the reproductive tract renders these tissues unfit for the healthy eompletion of childbearing.

PHYSIOLOGICAL PROPERTIES INVOLVED

In early life the secretory eells of the ovarian gland produce æstrogens in a continuous supply to develop the constitutional physical and psychie qualities which characterize the female. Later in life, at the menarche, the follieular apparatus of the ovary-which is a temporary gland within a gland, designed to produce a temporary increase in the growth and the functional, capacity of the tissues in the reproductive tract and breast as well as a temporary increase in general body metabolism in preparation for a pregnancy—becomes activated. The activation, maturation, resolution and atrophy of the follicular apparatus becomes, a eyelie event during the reproductive period. Ovulation or the extrusion of a mature ovum from the folliele is merely a timed incident in the temporary existence of a healthy folliele. The maturation and atrophy of a follicle at any time in the life of a human female, is not necessarily conclusive evidence that extrusion of a mature ovum from the ovary has recently occurred.

The regularity of the activation, the progress of the maturation and resolution, with rate of

^{*}From the Department of Obstetrics and Gynacology, Toronto General Hospital. .

WATSON: MENOPAUSE

atrophic degeneration of the follicles tends to be lessened and retarded respectively as age This interruption of progressive advances. elange in the existence of the follicle may result in the follicular apparatus becoming arrested at any stage of its development, at which stage it continues to be physiologically active and to produce estrogens or progestin for an indefinite period of time. Final complete arrest of follicular development, and ovulation, with the remaining secretory elements of the ovary continuing to secrete estrogens in a variable low concentration frequently long after what is now considered the menopausal age is the most common way in which the ageing process in the ovary as a whole progresses toward a state of complete atrophy.

This variation in type of follieular function, and final complete arrest of follieular function, going on to atrophy of the whole ovarian secretory element, causes variation in the symptoms and in the signs which are observed in the menopansal age. An attempt will be made here to describe three main classes of women according to the signs and symptoms resulting from the action of the predominating functional elements in their ovaries during this period of life. Constitutional and psychic changes, functional diseases in the reproductive organs, and the treatment of these conditions will be briefly discussed in a general way, accordingly, and as members of each group are known to be affected.

CLASS 1: THE MAJORITY OF HEALTHY WOMEN

It has already been stated that the most common type of ovarian atrophy during middle life is characterized by absence of ovulation, arrest of development of the follicular apparatus with a continued secretion of estrogens in low concentration, frequently far beyond the age which we have considered as that which is defined by the term "the menopause". In other words, in so far as ovarian function is concerned the natural menopause is pubeseence in a healthy reverse. If then, one may speak of this majority group of women as a class who experience the most natural menopause, it is timely that the most interesting developments of recent years in the investigation of this group may be briefly stated here. The secretion of estrogen in the urine of many women is known to occur long after the menopause. A varying degree of endometrial proliferation, in which cystic degeneration is a significant sign of physiological ageing, aecompanied by uterine bleeding which is either cyclic or irregular is indicative of ovarian failure of the menopausal type. The endometrium in the menopausal patient which is subjected to persistent estrogenic stimulation is predisposed to some degree of a hyperplastic state, to polyp formation, and to malignant change. Therefore treatment actively directed at the uterus should have as an objective, prevention of cancer, removal of endometrial polyp and the control of bleeding.

Ovarian atrophy is accompanied by some geneval neuro-vaseular disturbances, and some mild emotional upsets which are not fully under-Tissue changes in all sex organs occur which can be explained on the basis of tissue The neuro-vascular symptoms in gradual ovarian failure begin as a varying degree of collar flushing during moments of slight embarrassment. These minor neuro-vaseular symptoms can be accepted as a warning objective sign that reproductive ability is on Finally, sympathetic nerve control of the superficial capillaries over the whole surface of the body is affected and general flushing with profuse perspiration results. states of a minor nature such as erying without eause, or being unusually irritable in social relations, can be attributed to failing ovarian activity. As a practical guide, nutritional disturbances when they appear either in the form of great weight gain or loss, and psychie disturbanees beyond the degree of slight temporary emotional disturbances, should not be considered the result of ovarian failure and, should be treated with the guidance of special knowledge as it applies to these states. Reduction in size of the uterus and cervix, loss of rugæ in and thinning of the vaginal lining, atrophy of tissue eomponents of the vulva and breast, are signs by which the degree of lessened æstrogen secretion ean be satisfactorily estimated for elinical purposes.

Treatment.—To some extent, the general ageing process in other tissues runs parallel with the diminishing secretion of estrogens. It is not possible at the present time to combat this general tissue ageing by supplemental estrogen therapy alone. Objective symptoms and signs in the form of nenro-vasenlar disturbances, mild emotional upsets, and atrophie states, the vaginal lining are best treated by requirement therapy in the form of the return stugens, estrone sulphate, sudden and se

by mouth daily, or æstradiol benzoate, or diproprionate intramuscularly at intervals of four days to one week in severe cases. The dosage for either oral or intramuscularly administered preparations must be based on the degree of atrophy existing in the reproductive tract and the severity of the symptoms. Dosage must therefore be determined for the individual ease. In the absence of definite signs of atrophy in the vagina and cervix or when uterine or cervical bleeding is present replacement æstrogen therapy for verbal complaints should not be considered.

Bleeding from the uterine eavity in this class of patient may be irregular and inconvenient, it is seldom sufficient to give rise to secondary anæmia in the otherwise healthy woman. There is no supplemental hormone therapy which is of value or which can be considered a safe means of therapy for functional bleeding of the menopause. Uterine bleeding in the absence of cervical lesions, from a uterus which is atrophie or not grossly enlarged, can be reeorded and observed for periodicity and amount quite safely for a period of several months. Investigation and treatment of functional uterine bleeding of the menopause in this elass of patient must be scientifically based on absence of gross ovarian enlargement, consistency and degree of enlargement of the uterus in the estimation of which parity must be considered, and on earefully kept records of periodicity and amount of bleeding. enlargement of one or both ovaries removes the patient from this group. Gross enlargement of the nterns apart from fibroids demands early investigation by curettage. Curettage when performed for diagnostic or prophylaetic purposes offers temporary eure from troublesome bleeding in many eases. The bleeding will recur and become troublesome following this procedure in eases where there are no evidences of nterine atrophy. Intra-uterine radium up to one thousand to fifteen hundred milligram hours is a helpful means of controlling the uterine bleeding and obliterating the recurring nidus, the endometrium. absence of acquired disease, hysterectomy is seldom necessary to control bleeding in this elass of patient.

Endometrial polyp formation is not uncomthing The object Polyps are diagnosed with difficulty investigator, that of curettement. The majority, and can be removed by curettage. Bleeding is a constant symptom. and enlargement of the uterus may or may not be an accompanying sign.

Nulliparous and multiparous patients are subject to malignant change in endometrium maintained in a continuous proliferative phase of growth. The eaneer institute would be well advised to study the economies of the extension of the privileges of cheaper examinations, ineluding utcrine eurettement, to all women of the menopansal age, repeated if necessary at intervals. Carcinoma of the body of the uterus eould be almost completely eradicated and diseomfort and inconvenience from troublesome bleeding greatly lessened if this simple examination could be made available on a more economie and less exacting basis. Statistics show that eaneer of the body of the uterus de-pends on delay in submitting to a thorough gynæcological examination, largely among patients in this class in which the uterine bleeding is seanty and resembles a diminished menstrual flow. The age groups taken from 72. eonsecutive cases of eancer of the body of the nterns recorded in the History Room of the Toronto General Hospital recently show the following distribution. Over 70 years of age: 10 cases: 65 to 70 years, 7 cases; 60 to 65 years, 20 cases: 55 to 60 years, 13 eases: 50 to 55 years, 6 eases: 45 to 50 years, 5 cases: 40 to 45 years, 8 eases: 35 to 40 years, 3 cases: 30 to 35 vears, 0 cases.

The treatment of caneer of the body of the uterns is by prevention. It is reasonable to predict that 61 of the above cases could have been prevented by, a routine curettage with subsequent adequate treatment in suspicious eases performed on or near the 45th birthday.

CLISS 2: COMMON HYPERFUNCTIONAL STATE

The majority of women in this class are parons. The physiological mechanism which causes the follicular apparatus to develop to a state of submaturity and to continue to scerete estrogens for an indefinite time, while other follicles develop in a like manner to a similar state of submaturity, giving rise to an elevation in estrogen production, is not understood. Nevertheless, this is the type of ovarian activity which is characteristic in about 70% of women who are forced to seek relief from troublesome bleeding during the menopausal age. The uterine bleeding may be of a cyclic type or completely irregular with long periods

of freedom from bleeding between periods of flow. The uterus shows no signs of atrophy, the vaginal lining remains thick and retains its rugæ and these women have no neurovascular or emotional symptoms.

The endometrium is maintained in a very active state of proliferation, and glandular hyperplasia with a grossly thickened endometrium is the rule (Fig. 1). The difference

At the time of writing it is my opinion that healthy ovarian tissue should be preserved. There is a difference of opinion among well trained gynæcologists concerning the preservation of ovarian tissue at or past middle age. Some believe that if only one ovary is left the possibility of future trouble is reduced by 50%. My personal belief, as yet purely theoretical, is that the possibility of future trouble may be

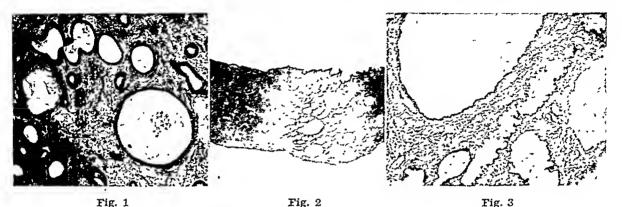


Fig. 1

Fig. 2

Fig. 3

Fig. 1.—Thickened endometrium with cystic degeneration in the glands pathognomonic of prolonged astrogenic stimulation as a result of arrest of follicle maturation (X61). Fig. 2.—Shows the whole thickness of uterus—the endometrium equals the muscular layer in depth of over 14 mm. Active lutein bodies in the ovaries. (Dr. D. M. Low's case). Fig. 3.—Section from area in Fig. 2 showing endometrium maintained in functional or secretory phase by prolonged secretion of progestin (x61).

between this class of patient and that described in Class 1, is due to the difference in degree of estrogen effect. In 70 cases studied, every one had volunteered a history of prolonged periods of bleeding with spotting between periods of flow. Mild secondary anemia was found in only 17 of the 70 cases. The anemia in these cases was due to blood loss over a period of several months rather than to sudden blood loss of the proportions of a hæmorrhage. The character of the bleeding with the firm, slightly enlarged uterus, are important points in the clinical differentiation between this class and the next class to be described.

Treatment.—There are no symptoms or signs in this group either subjective or objective which can be attributed to ovarian deficiency until late in the fifth decade. Supplemental estrogen therapy is contraindicated.

This group contained 70% of the patients who songht treatment for uterine bleeding in which a pathological diagnosis of glandular hyperplasia was made. Recurrence of endometrial proliferation with bleeding follows soon after curettage. Patients in this group usually show some degree of acquired uterine affection resulting from repeated labours and are best treated by total hysterectomy.

doubled by ablation of half the ovarian tissue, which leaves the remaining ovary subjected to a greatly increased stimulation from the pituitary hormones, which may give rise to peculiar development in the remaining ovary. It is advisable to remove both ovaries if ovarian disease of any degree is present.

CLASS 3: SECRETORY HYPERFUNCTIONAL STATES

My interest in the third and less common class of patient was aroused some fourteen years ago when in the course of observations in an attempt to estimate the state of ovarian activity, a condition in the uterns resembling a pseudo-pregnaucy was discovered in a woman over seventy years of age. The ovaries in this patient contained several active lutein bodies and the endometrium was maintained in a full secretory phase.1 Since that time this marked softening of the lower segment of the nonpregnancy uterus with complete absence of any sign of diminished ovarian secretion—the reverse being the case—and a tendency to blood loss approximating or constituting a hamorrhage, has been considered a set of signs and symptoms indicative of persisting corpus luteal activity. Thirty-seven eases have been studied. Uterine hamorrhage is sudden and severe. causing these patients to seek relief quickly. Eighteen cases of the 37 showed a marked secondary anæmia. The endometrium is maintained in a full functional or secretory phase (Figs. 2 and 3).

To date no nulliparous patient has been observed showing this type of ovarian function in late years. Most of the cases studied have been multiparous with three or more pregnancies.

The treatment is total hystereetomy to control bleeding from a parons nterus. The bleeding is liable to recur after dilatation and Radium therapy in cases curettage alone. where the uterus is large and soft is unsatisfactory because of the possibility of offensive discharges and rarely, pyometra results from this form of therapy in this type of case.

THE BREAST

Prolonged secretions of æstrogens will maintain a state of chronic congestion in the breast with a tendency to proliferation of gland tissue and to cystic disease. The individual will complain of a sense of fullness which is constant, of pain and tenderness in the glands, and of a distressing feeling of heaviness or weight. The breasts are enlarged, tender and the texture of the gland substance is firm, coarse and lumpy on palpation. In a few eases definite lumps can be isolated for quiek section; in many cases one is confused as to what portion of the gland should be subjected to biopsy, the whole being involved. This condition is very common in patients described in Classes 2 and 3 and may be found in some cases in Class 1. It is a transitory phase in the physiology of the breast and is completely relieved as ovarian atrophy progresses. The rôle of oyarian secretions as a factor in the cause of breast cancer will not be discussed here.

Conclusions

1. Three clinical types in women during the menopausal age have been described. The first, those in whom ovulation stops, follicle formation becomes arrested and a gradual atrophy of remaining secretory elements in the ovary follows over a period of years. Second, those women who have active sub-mature follieles continning to form, who present few symptoms during the menopause but irregular uterine Third, the rarer type of patient, multiparous (three or more pregnancies) who have active lutein bodies in the ovaries and a

state of pseudo-pregnancy maintained in the reproductive tract, in whom bleeding in the form of a hamorrhage is frequent, causing severe secondary anemia in over 50%.

- 2. Women in Class 1 are in the majority.
- 3. Subjective neuro-vascular and psychic symptoms during the menopause are best treated with the natural estrogens in the form of æstrone sulphate by oral administration.
- 4. Œstradiol benzoate or œstradiol disproprionate administered hypodermically-are useful preparations for treatment of nlceration or senile vaginitis due to extreme degrees of atrophy.
- 5. The degree of atrophy in the breasts, external genitalia and vagina is a useful clinical guide to requirement and dosage of æstrogens in treatment of symptoms of the menopause.
- 6. It is a desirable prophylactic measure to perform curettement on those patients in Class 1 who have troublesome spotting or bleeding in the late fourth decade and definitely desirable in the fifth decade. Curettage is a diagnostie aid in all cases and controls bleeding in many. In cases where there is slight uterine enlargement and no other sign of local disease, insertion of radium is often necessary to control or arrest the blood loss.
- 7. Total hysterectomy should always be considered as the optimum means of treatment to eontrol bleeding and hiemorrhage and as a prophylaetie measure against malignant changes in Classes 2 and 3.
- 8. The results of ovarian atrophy and loss of ovarian secretion on the general body economy are gradual and in a scuse run parallel with ageing processes in all glands and tissues. Great variations in weight and severe psychosis are not the results of ovarian deficiency alone.
- 9. Carcinoma of the cervix. endometriosis and fibroid tumours of the uterus are three conditions which are often neglected and undiagnosed until patients are well advanced in the menopausal age. Symptoms and signs from these diseases are frequently from far advanced or end stages of the disease, at this age, and the method of treatment is determined by the extent of the diseased process which is present.

REFERENCE

1. WATSON, M. C.: The effect of the administration of estrone and progesterone on the human uterus, J. Obst. & Gyn. Brit. Emp., 43: 1175, 1936.

SOME PRACTICAL GUIDING PRINCIPLES FOR CLOSED PNEUMONOLYSIS

G. A. P. Hurley, M.D.

Montreal, Que.

IN the operation of elosed pneumonolysis for intra-pleural adhesions, perhaps more than in most surgical procedures, the experience of the operator in case problems and the behaviour of tuberculous lesions, is of paramount importance.

The actual bloodless division of adhesions is a matter of technical skill which can be easily acquired by anyone with manual dexterity, who possesses an average knowledge anatomy. There are at present two techniques for elosed pneumonolysis, namely: (1) the galvano-cautery method of Jaeobeus; and (2) the high frequency electric cutting current advocated ehiefly by Matson. On this continent, the former method is the more popular and the instruments devised by Coryllos are the most frequently used. Its elief advantage is its simplicity but a disadvantage is its relative inefficiency in controlling hæmorrhage. electro-surgical technique enables one to eoagulate the tissue thoroughly before division and so practically obviates the risk of hæmorrhage and enables more rapid division. , It is more complicated to work, however, and the apparatus is more expensive. By proceeding slowly with a relatively cool eautery the incthod of Jacobeus is perfectly safe. It is the method that is referred to throughout this article.

The capacity to assess the value of dividing or even attempting division of any particular adhesion is, however, quite a different matter. The complications of an unwise attempt at division are of sufficient gravity to make this eritical judgment a sine qua non for anybody who does this operation. Briefly, the chief complications are:

1. Those due to wounding of the lung. If a diseased part of the lung is wounded the following sequelæ may result: (a) broucho-pleural fistula: (b) tuberculous or mixed infected tuberculous empyema: (c) tension pucumothorax.

If a non-diseased portion of lung is divided tension pneumothorax is the principal accident to be feared. Serious hamorrhage rarely results from wounding the lung. 2. Those due to wounding of the mediastinal or parietal structures. The chief of these complications is life-threatening hæmorrhage which may be of gradually increasing severity when an intercostal vessel is injured or of rapidly increasing severity, usually fatal, when a large vessel of the mediastinum is wounded. Rarely an intercostal nerve or the phrenie or vagus nerves in the mediastinum may be damaged. The chief danger of touching a nerve with the live cautery is a sudden movement on the part of the patient which may cause the cautery to damage neighbouring tissue.

In order to avoid the complications, or at least reduce them to the minimum, the surgeon must take into account the following factors:

1. The type and extent of the disease.—There is not much hope of acquiring a useful pneumothorax in a lung affected by acute pneumonic phthisis or easeous pneumonia. The attempt may be dangerous in a patient with a large cavity in the lung, particularly if it lies elose to the viseeral pleura.

In a patient with extensive bilateral disease and greatly lowered respiratory reserve the actual opening into the chest may allow sufficient additional collapse of the lung to cause asphyxia. The surgeon may, by careful manipulation, prevent the accumulation of an undue amount of air within the chest and should too much air enter, it can be rapidly evacuated by using the patient's expiratory movement to expel it. Thus, one should proceed with great caution in cases with greatly diminished respiratory function and where there is already evidence of dyspnæa, the attempt should certainly be abandoned.

2. The age and size of the pneumothorax .-It is almost certain that the duration of the pneumothorax is of little importance. rule the sooner the pneumonolysis is done after the induction of the pneumothorax the better. It can usually be undertaken within two weeks of the pneumothorax induction.. In old-established pncumothoraces the plenra becomes thickened and the lung borders difficult to define, while the adhesions themselves become stiffer. shorter, and sometimes more vascular. developments increase the hazard of division. The size of the air-containing space is, however. of great importance and must be such as to allow safe manipulation of the instruments within the cliest. Careful determination of the site of the adhesions and their relation to the established space must be achieved by fluoroscopy and postero-anterior and oblique x-rays. Air aspiration at the site of the intended cannula entry must be done and careful probing for the lung at the same spot with a blunt probe such as the Küss needle gives one additional information on this point. The lung must have fallen away from the chest wall by at least one inch before safe introduction of the trocar and cannula can be counted on. Having introduced one cannula, the thoracoscope can then be inserted and one can form a final judgment as to the wisdom and method of proceeding further.

3. The appearance of the pleura.—The mere presence of intrapleural adhesions indicates disease of the pleura, but in a large proportion of eases division of this diseased tissue does not Possibly the lead to further complications. adhesions are usually eaused by a non-specific inflammatory process proceeding from the actual tuberculous lesion deeper in the lung, and their division does not involve transection of tuberculous tissue. Outspoken tuberculosis of the pleura, however, as indicated, for example, by miliary tubercles on the membrane, constitutes a contraindication to intra-pleural pneumonolysis, and indeed to pneumothorax itself. Tuberculous empyema can be expected to develop soon here unless the pneumothorax is promptly abandoned.

The presence of a pleural exudate should also eause some hesitation. A small clear effusion such as one sees in a large proportion of pneumothoraces is of no consequence. A rapidly increasing effusion accompanied by rise in temperature, however, should probably constitute a contraindication. An acutely inflamed, reddened pleura likewise indicates non-acceptance of the risk.

- 4. The character of the adhesions.—(a) The site of the adhesions. Clearly the first essential for the surgeon is a thorough knowledge of the topography of the interior of the chest.
- 1. Peripherally placed adhesions are obviously capable of division without much danger provided that their length is such as to enable one to avoid wounding the lung or an intereostal blood vessel.
- 2. Adhesions lying close to the mediastinum on the other hand involve working with the cautery in close proximity to important vital structures. Manipulation of the cautery here requires skill and cool courage but these qual-

ities will not operate in the patient's favour if the adhesions lie too near the large vessels. A sudden movement of the eonseious patient may result in a calamity. It is fortunate that short adhesions placed very close to the mediastinum are rarely of much importance from the point of view of hindering satisfactory collapse of the lung.

Adhesions lying in the anterior part of the dome of the pleura frequently cover and obscure the subclavian vessels and the brachial plexus. It is necessary therefore to proceed very cautiously here. At least one instance of division of a subclavian vessel possibly drawn by fibrous tissue pull into an adhesion, has been reported. Adhesions occupying the posterior part of the pleural dome, particularly if attached below the neck of the first rib, can be tackled with much greater freedom.

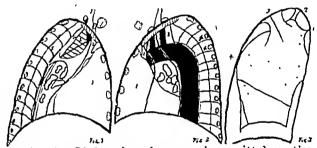


Fig. 1.—Right pleural space, in sagittal section. (1) Pericardium; (2) right innominate vein with right phrenic nerve lying on it; (3) trachea with right vagus nerve lying on it; (4) asophagus; (5) intercostal vessels being crossed by the sympathetic chain.

Fig. 2.—Left pleural space. (1) Pericardium; (2) left innominate vein; (3) esophagus; (4) intercostal vessels being crossed by the sympathetic chain. The arch of the aorta (crossed by the left vagus and phrenic nerves) together with the left common carotid and left subclavian arterics are shown in black.

and left subclavian arterics are shown in black.

Fig. 3.—Types of intrapleural adhesions. (1) String adhesion; (2) band adhesion; (3) block adhesion;

(4) surface to surface adhesion.

(b) The type of adhesion. The types of adhesions commonly met with may be briefly classified as follows: (1) strings—of varying thickness and length; (2) bands—of varying width, thickness, and length; (3)—blocks of varying shapes, thickness, and length; (4) parietal to visceral pleura surface apposition.

In order to ensure a bloodless division of an adhesion it is necessary to work with a relatively cool cautery. The cautery tip should not show more than a dull red glow in a darkened room and it is better still if no glow is apparent and the cautery is sufficiently active to burn slowly through a strand of ordinary surgical gauze with a charring effect. If a blood vessel is seen in the adhesion this

may first be coagulated with a flat eautery tip before being divided with the edge. Should free bleeding occur the leak may be sealed by pressing the slightly heated tip against the bleeding point.

Division of a string adhesion is usually an easy matter; these adhesions are commonly of considerable length and avascular. A band adhesion, similarly, if a centimetre or more in length, can be disposed of without much trouble. These adhesions may contain fair-sized arterioles which require to be slowly coagulated before division.

The block adhesions require to be tackled with great care because, owing to their thickness and irregular shape, the lung tissue may extend into them for a considerable distance without being detected. Pieeemeal slow divi-. sion should be the rule for these, with frequent use of the cold cautery tip for blunt dissection. Blunt dissection, however, is apt to cause bleeding by tearing the contained vessels, and the motions must be of a gentle character. If it is seen that persevering with the division is apt to wound the lung then the attempt must of eourse be abandoned. As already mentioned, short block adhesions lying in the upper anterior part of the elest are apt to cover the subclavian vessels and the braehial plexus, and here it is often wiser not to attempt division.

Broad adherence of the visceral and parietal layers of the pleura if not of too great an extent can frequently be separated by pushing the lung away gently from the ehest wall with the eold cautery tip. Too extensive or forceful a dissection of this type, however, is apt to wound the lung or an intereostal vessel, and should not be tried. This is particularly true if the adhesion is very resistant and of long duration. Surface-to-surface adherence or a block adhesion overlying a cavity in the lung must be treated with appropriate respect, beeause forceful dissection or incautious division may open into the eavity leading to bronehopleural fistula and probably mixed infected empyema.

Hence it is evident that both the block and surface-to-surface broad adhesions are often best left without attempting division, and it is here that the judgment of an experienced operator is of decisive value.

5. Availability of facilities for blood transfusion and open thoracotomy. — Many closed pneumonolysis operations are performed in outlying sanatoria which do not possess for performing open thoracotomy. It is clear that under these conditions the surgeon must be doubly eareful not to endanger the patient's life through hæmorrhage. Conversely, in more centrally located larger institutions where all facilities are available the surgeon is free to be bolder in his procedure. Thus, under ideal conditions, this operation should be performed only where facilities for major surgery are available.

At the close of the operation, the intra-pleural pressures are brought to zero or not more than plus two on expiration, by aspirating air. If the breathing is not comfortable at these pressures further air should be removed. The chief guiding principle of the postoperative period is close (daily, at first) fluoroscopic control so that the pneumothorax may not be lost by the passing of the air into the tissues. Should this occur, appropriate refills of air must be given. Tissue emphysema is rarely seen after the third postoperative day.

Serous or sero-sanguineous fluid collections. if reaching above the lower fourth of the ehest, are best removed by aspiration.

EFFECTS OF GALVANIC STIMULATION ON LIMB VOLUME IN NERVE INJURIES*

James E. Bateman, M.D.

Toronto, Ont.

THE aim of re-eonstruction in extremities with peripheral nerve injuries is maximum function of the part. Recovery of function will depend on the state of the muscle fibres as well as on the extent of re-innervation. While much attention has been paid to the diagnosis of nerve injuries and to the technique of suture. the eare of the muscle on the other hand has been relatively neglected. Some of this neglect arises from the lack of an accurate physiological explanation of the atrophy which occurs following denervation. The process of atrophy begins a few days following nerve section and leads to severe damage of the contractile he amphy increases, is acmuscle element and followed by companied by this progressive infiltration of

Christie St

^{*}From the O Hospital.

contractile re-innerva-

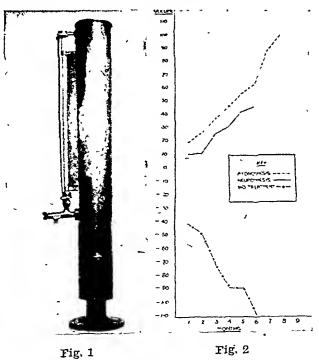
tion of motor end plates by blocking or constricting regenerating axones. The obliterating fibrosis will further jeopardize the formation of new patterns of innervation and the ntilization of new motor end plates.

Among the therapeutic measures prescribed to diminish atrophy, electrical stimulation has the most scientific evidence to support it. Opinions regarding the value of electrical stimulation have long been in conflict, but during the recent war, strong experimental evidence in favour of electrical exercise has been introduced by several workers, notably. Solandt and his associates, Gutman, and Guttmann and Hines. The results of these carefully controlled experiments in animals indicate: -(1) The atrophy of denervation may be decreased by electrical stimulation. (2) The effectiveness of clectrical stimulation varies directly as the number of treatments within the fatigue level. (3) The electrical stimulation accelerates the return to normal volume after re-innervation has begun. (4) Less fibrosis, larger muscle bundles, more definite striation is apparent microscopically following adequate galvanic stimulation.

On the clinical side, reports of definite measured improvement following electrical stimulation have been meagre. There are possibly several factors contributing to this. the past, changes following stimulation have been recorded by measurements of the circumference or by plaster models. Such methods do not appear sufficiently accurate. mental evidence recently has indicated that significant change in muscle volume may be expected only from frequent continued stimulation. ('linical trials previously reported have been based very possibly on inadequate therapy as compared with present standards. significance of proper exercise for atrophied muscles has received important emphasis in the recent application of the heavy resistance This recognition of a routine by Delorme. proper stimulus in muscle exercise has produced striking results. In the same way it is possible that the proper electrical stimulus for denervated muscle will be of value. From these observations of past experimental and clinical records. it is apparent that the effects of adequate electrical stimulation should be thoroughly re-investigated from a clinical standpoint.

The problem of accurately assessing changes following electrotherapy has been a vexing one. Clinical observation, measurements of circumference and so on arc only rough indications of any change and are not reliable. To assess changes in uniform fashion, the estimation of limb volume is the most accurate method.

Changes in limb volume may be estimated by carefully measuring fluid displacement in a properly constructed cylindrical tank. Investigation of this problem was carried out in injuries of the arm, and after several trials a suitable tank was constructed (Fig. 1). size and shape of this cylinder needs to be such that the largest arms may be accommodated and yet be as small as possible to attain maximum displacement of the fluid column. Changes in the arm may be more easily recorded and compared than those in the leg and at the same time the misleading changes of ædema, vascular disturbances, and effects of gravity will be more easily controlled. The method followed in this investigation was to record fluid displacement after immersion of the arm to a certain level in the tank. The fluid displacement was measured by an attached gauge. The depth of insertion of the arm in the tank was accurately controlled and measurements were made at the same level in a given arm over a period of months. The level of measurement was taken from an unchangeable bony point, the olecranon, and the depth of immersion indicated in inches proximal to the olecranon. This was measured accurately by means of a broad right-angled wooden ruler which was applied along the subcutaneous surface of the ulna. The usual distance for immersion was six inches above the olecranon, or olecranon plus six. Occasionally, because of the length of arm or because of limitation of extension at the elbow, measurements were made at a lower level, for example, olecranon plus three.



The establishment of a common recognized relationship to normal limb volume was accomplished first by comparing one hundred right and left arms. This was used as a base line to assess errors in recording and technique, and also for comparison of the volume changes

in injured limbs. Measurements were made of injured arms before and after immobilization in plaster, with electrical stimulation, and without electrical stimulation, after neurorrhaphy and after neurolysis. As far as possible, readings were repeated at monthly intervals and followed for eight to ten mouths.

RESULTS

Observations were confined to 217 injuries in the arm all of which needed treatment. This included 86 nerve sutures on whom accurate measurements were made before and after suture, and followed for eight months.

- 1. Comparison of normal right and left arms.

 —The average volume difference was 51.84 e.e.
 This reading was at a level of six inches above the oleeranon, the dominant arm being larger.
- 2. Changes after immobilization in plaster for 12 weeks without electrical stimulation.—The average loss was 56.7 e.e.
- 3. Changes after immobilization in plaster for 12 weeks with electrical (galvanic) stimulation through the plaster—All showed a basic gain averaging 8 c.c.
- 4. The progressive changes with electrical stimulation following neurotmesis and axonotmesis are recorded graphically in Fig. 2. The results are compared with a series of 30 patients not receiving treatment.

Discussion

In plaster, with electrical stimulation, there was an average gain of 8 e.e.; without stimulation there was an average loss of 56 c.c. This means a gross difference of 64 e.e. between arms receiving and not receiving treatment. In terms of clinical observation, this is a difference slightly greater than that normally seen between right and left arms. Improvement with treatment rose steadily for six months and then remained relatively stationary. The average change has been charted in the graph but analysis of the 86 nerve sutures on whom all readings were available showed that not all gained consistently with electrotherapy. Sixtythree showed a positive balance as compared with the level before suture, 20 showed no significant average gain while 6 showed a slight eonsistent loss. The maximum loss occurred in an ulnar suture above the elbow and showed a loss of 12 e.e. over a period of 8 months despite adequate therapy.

The changes in limb volume were even more striking in those patients with an axonotmesis or in those in which only a neurolysis was necessary. Their gain was roughly double that of nerve sutures and showed a more progressive pattern for five months, but volume then continued to increase instead of levelling off. In the control series, nerve sutures without electrical stimulation never showed a positive balance. Their loss was greatest soon after suture and decreased slightly after removal of plaster.

The gross difference between treated and non-treated eases following removal of plaster at six months was 42.5 c.e. or slightly less than the usual difference between normal right and left arms. It is seen that this difference is slightly less than that recorded immediately after plaster immobilization, indicating that there is some benefit derived from active use of the extremity but it is measurably less than the change due to electrical stimulation. The longer the period without electrical stimulation, the greater the volume difference observed between treated and untreated extremities. This difference however is contributed to more by increasing atrophy of the untreated extremity than decreasing atrophy of the treated extremity. It is apparent that a positive balance is most easily obtained with treatment early after suture, while in the later months, the effect of stimulation is to minimize or slow down the atrophy.

Conclusions

- 1. Adequate continued galvanic stimulation of denervated muscle produces measurable increase in limb volume. This corroborates previous experimental results in animals.
- 2. The changes are such that eareful volumetric examination is necessary for demonstration.
- 3. Improvement from electrotherapy is greatest in the early period after nerve suture.
- 4. The improvement which may be expected from electrical stimulation is roughly comparable to the difference seen between normal right and left arms.
- 5. Not all nerve sutures will maintain a positive balance even with adequate electrical stimulation but increasing atrophy may be prevented in 93% of nerve sutures.
- 6. It is felt that the average consistent volumetric improvement following electrical stimulation as compared with the average consistent loss without treatment is a sound

basis for continued use of adequate galvanie stimulation.

BIBLIOGRAPHY

- GUTMAN, E. AND YOUNG, J. Z.: J. Anat., 78: 1944.
 SOLANDT, D. Y. AND DELURY, J. H.: Arch. Neurol. d Psychiat., 49: 802, 1943.
 HINES, H. M.: J. Am. M. Ass., 120: 515, 1942.
 GUTMANN, E. AND GUTTMANN, L.: The Lancet, 1: 169, 1942.

INTESTINAL PARASITES FOUND IN SURVEY OF REPATRIATED HONGKONG P.O.W.

T. H. Williams, M.D., C.M., D.T.M.&H.(Eng.)

Director of Laboratories, Deer Lodge Hospital, D.V.A., Winnipeg, Man.

THE Winnipeg Grenadiers were one of the two battalions which fought at Hongkong and were for years prisoners in the Orient. When these men were released from prison camps in Japan and Hongkong and began to arrive home in Winnipeg we anticipated from experience in the Orient that they would bring with them numerous parasitie infections.

The first returned Grenadier admitted to Deer Lodge Hospital was found to be suffering from malaria, amœbiasis, and asearis infection. cordingly orders were issued that all hospital eases returned from the Paeifie theatre of war should have a full survey for parasitic infee-This survey tions immediately on admission. was also carried out. by orders from the Officer Commanding M.D. 10, on all ex-Hongkong returnees to Military District 10 whether admitted to hospital or not. Deer Lodge laboratories were requested to conduct this survey on all returnees hospitalized or otherwise including those in other hospitals in the area. This was undertaken and carried through at a time when our own hospital and laboratories were taxed to the full and to assist in the survey certain officers and other ranks of the R.C.A.M.C. were detailed for duty at Deer Lodge. We thus obtained for a time the very able assistance of Captain M. J. Miller an expert parasitologist who has reported similar surveys done by him.1,2 He was later replaced by Captain C. R. M. Eaid who had some previous experience in parasitology. These with our own staff put through frequently over 100 examinations per day.

The survey has now been completed except for a few rechecks and a total of 553 veterans have been examined with results as shown in Table I.

TABLE I.

PARASITES FOUND IN 553 EX-PRISONERS RETURNED FROM HONGKONG

•	Percentage
Entamœba histolytica 72	13.0
Entámæba coli	32.5
Endolimax nana 122	22.0
Iodamæba butschlii 21	4.0
Giardia lamblia 37	6.7
Chilomastix mesneli 21	
Trichomonas hominis 7	1.3
Isospora hominis 1	
Ascaris lumbricoides 193	
Trichuris trichiura 116	21.0
Hookworm 14	2.5
Enterobius vermicularis 1	
Trichostrongylus colubriormis 1	0.2
Total examined 553	

METHOD

The method followed was similar to that deseribed for our survey of men returned from service in Mediterranean areas.5 Three or more stool speeimens were examined from each man by direct smear in saline and D'Antoni's iodine and by zinc sulphate flotation technique. positive findings were reported and treatment given, after which recheek was done one week or more after treatment for helminths and also 3 months after treatment for protozoa. A second recheek has recently been earried out on many of these men.

DISCUSSION

Helminths.—As we had expected, the incidence of helminth infection was much higher than in those returned from Mediterranean Many of this group had been held for examination and treatment at centres en route before their arrival here so that the total ineidence of parasitie infection was higher than our results indicate. Those who flew direct home or hitch-hiked from the south west Pacific and reached us with pristine freshness were all found to harbour some form of parasite. Ascaris lumbricoides was the most frequent parasite found and was met with in 193 persons, being 35% of all examined. This is the most spectaeular of the parasites harbonred and its unheralded appearance in the fæces was of material assistance in getting co-operation from troops in the survey. The ova are distinctive and numerous, since each female is believed to produce an average of 200,000 per day and the diagnosis is fairly easy. However, repeated experience has taught us that an overgrown male worm may be passed after a therapeutic test when fæcal examinations had been negative. The standard treatment given was hexylresorcinel, in the form of 5 crystoids containing a total of 1 gram on an empty stomach early in the morning, followed by a saline purge 3 hours later. Oil must never be given following vermifuge as it increases toxic absorption of the poisons used.

Treatment given soon after return from prison camps was frequently not successful in removing all worms, and ova reappeared in the fæces a week after treatment, whereas treatments given some months after repatriation were almost always successful in completely eradicating the parasites. The failure to eradicate all worms in the cases treated early may be due to the probability that there were then larval forms in transit through the viscera, lungs, etc., en route to their intestinal final abode. Such larval forms would not be exposed to the vermifuge during that part of their development during migration through liver, heart and lungs. Since no reinfection would be expected under Canadian sanitary disposal of fæces, eases treated somewhat later after return to Canada would have all worms already in the intestine where they are exposed to the vermifuge. There is also the question of improved general health of the patient at this later treatment, since resistance to helminths has been shown to vary with general health and particularly with dietary sufficiency. Of 121 initial treatments given there were 33 still showing ova when rechecked after a week or more. A second treatment with 5 hexylresorcinol crystoids cleared 30 of these 33. The remaining 3 were given 2 e.c. tetrachlorethylene and 1 c.c. oil of chenopodium in capsules, which cleared 2 of them. The remaining case was cleared after repeating the above mixture. All cases resurveyed 10 to 12 months after return to Canada and treatment were found negative. One untreated case recently passed a solitary male ascaris.

Trichuris trichiura (whipworm) was a fairly frequent finding, amounting to 116 cases, being 21% of all persons surveyed. This is much higher than was found in our Mediterranean veterans. Frequently this was not found in patients until other parasites, especially ascaris, had been cleared. A subsequent flotation test for recheck often brought the typical barrel-shaped double handled whipworm ova to notice. Most of these were comparatively light infec-

tions and consequently of no pathological significance, but in some cases the infection was heavy and these men appeared improved by vermifuge treatment. However occasional ova could usually be found on recheck and this parasite is notoriously difficult to entirely eradicate. Treatment was the same as detailed above for ascaris.

Hookworm was found in 14 cases and worms recovered after treatment were all Ancylostoma duodenale. The ova rise well with zine sulphate flotation, but may easily be missed if the whole cover slip preparation is not carefully searched, and have a tendency to be near the edges and corners of the cover slip. Also it is important that the stool be fresh, as otherwise the ova will have hatched and the larvæ left the egg, which occurs in 24 hours under warm conditions. This is one reason why stool specimens must all be examined the same day as voided unless preserved in formalin, which prevents hatching.

Of 11 cases treated with hexylresorcinol, 7 were cleared. The remaining 4 were then given 2 c.c. tetrachlorethylene and 1 c.c. oil of chenopodium in capsules on an empty stomach followed by a saline purge after 3 hours. case still showed ova in the stools a week later and this case cleared after repeating the above treatment some weeks later. It is not wise to repeat too quickly and is not necessary, as the first treatment will reduce the infection below clinical pathological levels. Also it is wise to fortify the liver for a few days before giving any volatile hydrocarbon vermifuge and this can be conveniently done by giving calcium lactate. We have had no untoward reactions from any of our vermifuge treatments here but I have seen them elsewhere.

Only one case of Enterobius vermicularis (thread-worm) was seen. It is probable that more might have been found if the Scotch tape method of diagnosis had been tried on a large scale, but it was not sufficiently indicated to be attempted on so many men. This test is very simple and by actual test by the author has been proved many times more efficient than other methods of diagnosis for suspected threadworms. Our modification is simply to wind a layer of Scotch tape sticky side out around the end of a tongue depressor leaving a centimetre or so projecting at one side where it is cut from the spool of tape. Have the subject stoop over and spread the buttocks with his hands, not yours, and touch the Scotch tape, by means of the tongue depressor acting as a handle, against the right and left borders of the anal opening. Then place the tape-encircled tongue depressor on a clean glass slide and stick down the projecting margin. Unroll the tape sticking it to the slide as you do so and smooth it with the tongue depressor which is then discarded. Thus you have a permanently mounted microscopic preparation without having yourself touched any infected surface. We have such preparations stored for 4 years and still in good condition. Ova can readily be found by scores if worms are present.

One case of Trichostrongylus colubriformis was found. These ova and worms somewhat resemble hookworms and the treatment is the same. The ova do not rise as well with zinc flotation. The infection was undoubtedly picked up in Japan, where it is not uncommon.

No cestodes or trematodes were encountered.

PROTOZOA

Entamæba histolytica was found in 72 cases, being 13% of all examined. This we feel is a minimum figure, as only a small part of those examined were hospitalized and in most eases only 3 specimens were examined. With the drive of over 100 stool specimens per day to be examined sufficient time could not be spent on each case for sure recognition of all positives, if such a thing is possible with amæbiasis. A few cases negative in the rnsh to be cleared before the first Christmas at home after a Japanese prison camp were later found positive at resurvey, but on the whole resurvey has added little to the first results. Only a small percentage of those infected were shown to have active trophozoites; most were eyst passers. Some had already been treated en ronte home and either not cleared or had recurred. In our treatment here it was felt that owing to prison dietary deficiencies with avitaminosis effects on heart and liver it would be best to use the less toxic diodoguin rather than emetine and carbarsone. Accordingly 3 tablets, each 3.2 grains, were given orally t.i.d. for 20 days. Stools were negative usually after 8 days and invariably after 12 days of treatment and for a time after completion of treatment but some cases recurred.

All cases treated at Deer Lodge Hospital were told to return after 3 months for a recheck. Notices were sent out to them and of 49 eases of amæbiasis resurveyed after periods varying from 2 to 11 months only 4 were found still

passing E. histolytica cysts. These were retreated by intramuscular injection of emetine hydrochloride 1 grain each day for S days, followed by carbarsone 0.25 gram morning and evening for 10 days. Up to the present none of these resurveyed have been found to have relapsed. Some have been rechecked, 3 stool specimens each time on 2, 3 or 4 occasions over a period of one year and all proved negative.

Many men negative on first check have been rechecked since, and of these only 3 have been found passing cysts of *E. histolytica*.

Giardia lamblia was found in 37 being 6.7% of all surveyed. Giardiasis in our experience has been the only proved cause in nunerous cases complaining of frequent watery bowel movements without blood. In these cases treatment was given of mepacrine (atebrine) 0.1 gram t.i.d. for 8 days. This caused immediate cessation of diarrhœa and no trophozoites or cysts could be found one week after completion of treatment but in 7 eases there was later recurrence and Giardia were again found. , A second course of similar treatment was given and 6 cases then remained clear. The other case again recurred and was given a third course, after which he has remained free of symptoms to date. The probability of autoreinfection in some of these cases must be considered. Many persons harbouring Giardia lamblia show no symptomatology whatever while others have definite dysenterie attacks.

Isospora hominis was found in one patient. This man also had moderate trichnris and heavy ascaris infection. He was anæmie and undernourished. He was first treated for his helminths with hexylresoreinol and the treatment had to be repeated. He complained of watery diarrhea at intervals of a week or more with duration of a week of diarrhea. No blood was Scareh of the stool seen on any occasion. showed typical cysts of Isospora hominis. Owing to his debilitated condition we first tried diodoquin as detailed above for amediasis. After the first 12 days of treatment daily stool specimens showed no Isospora but 2 days after treatment was completed symptoms again appeared and Isospora were again present on examination. He was then given emetine hydrochloride, one grain intramnscularly for 8 days followed by carbarsone one capsule of 0.25 gram b.i.d. for 10 days. Isospora disappeared and the diarrhæa ceased and did not reenr. Careful search of 5 specimens six months later showed no parasites present. The patient had now gained eonsiderable weight and strength.

MULTIPLE INFECTIONS

These were so common as to be the rule; of 72 persons harbouring E. histolytica, 66 had multiple infections as shown in the table below.

TABLE II.

ENTANCERA HISTOLYTICA IN COMBINATION WI	m:
One other protozoa	12
Two other protozoa	12
Ascaris lumbrieoides	10
Triehuris trichiura	3
Two helminths	4
One helminth and one protozoa	Ü
One helminth and two protozon	11
Two helminths and one protozoa	4
Three helminths and two protozoa	1
Entamæba histolytica only	G
Total	72

Ascaris lumbricoides, exclusive of those assoeiated with E. histolytica was found in combination as shown in Table III.

TABLE III.

MULTIPLE INFECTIONS WITH ASCARIS OTHER THAN IN TABLE II.

Trichuris trichiura	15
Hookworm	3
Two helminths	2
One protozoa other than E. histolytica	25
Two protozoa other than E. histolytica	13
Three protozoa other than E. histolytica	5
One helminth and one protozoa	19
One helminth and two protozoa	s
Combinations with E. histolytica	29
Asearis lumbricoides only	S4
Total double infections 123	
Total triple infections SO	
Total quadruple or more infections 29	
Total multiple infections	232
Single parasite infectious	165
No parasites found (28.2% of all)	156

COMPARISON

For comparison with these men returned from Hongkong prison camps we have checked the results of 175 enlisted personnel returned from service, chiefly in R.C.A.F., in India, Ceylon and Burma. These showed 56% having no parasite infection. The endemieity of parasite infection in the two localities is similar but the Grenadiers as prisoners were inadequately fed and housed with poor sanitation facilities and were reduced to eating everything of a protein nature obtainable by issue or otherwise. Also by comparison 100 patients in hospital returned after service in northwest Europe showed 74% with no parasite infection,

Surveys on returned personnel have been reported by Bews and Choquette,3 Miller,2 Fletcher, Dongan and Sammon' and Williams.5

It is pointed out that the Hongkong returnees reported by Fletcher et al, were hospitalized patients, while the present survey included all returned personnel most of whom were not hospitalized.

Figures for malaria are not included in this parasite survey because so many of these were diagnosed and treated elsewhere that our figures would only be misleading.

SUMMARY

Five hundred and fifty-three veterans returned from prison eamps in Hongkong and Japan showed only 28.2% free of any intestinal parasites as compared with 56% free of parasites after service in India, Ceylon and Burma and 74% free of parasites after service in northwest Europe. Helminths were much more often found than in any other returned troops. Pathogenie protozoa were approximately equal to findings in Mediterranean servicemen. One ease of Isospora hominis was found. Treatment used and results of rechecks are given.

REFERENCES

- REFERENCES

 1. MILLER, M. J.: The intestinal protozoa of man in mid-western Canada, J. Parasitol., 25: 355, 1939.

 2. Idem: Anicobasis in the Canadian Army—Report submitted to the Associate Committee on Army Medical Research 1944.

 3. Bews, D. C. and Choquette, L. P. E.: A preliminary study of the incidence of intestinal protozoa in the Canadian Armed Forces, Canad. Mil. J., 49: 501, 1943.

 4. Fletcher, J. P., Dougan, A. A. and Sammon, G. K.: Anicobiasis, Canad. M. A. J., 55: 278, 1946.

 5. Williams, T. H.: Intestinal parasites in the Canadian Armed Forces, Canad. M. A. J., 54: 249, 1946.

RÉSUMÉ

Chez 553 vétérans de retour des camps de prisonniers de Hongkong et du Japon, 28.2% seulement ne pré-sentaient pas de parasites intestinaux tandis que le pourcentage montait à 56% chez ceux qui revenaient des Indes, du Ceylan et de Birmanie. 74% de ceux qui revinrent du nord-ouest de l'Europe n'avaient pas de parasites intestinaux. Les helminthes furent rencontrés beaucoup plus fréquemment que ehez les prisonniers rapatrics d'autres régions. Les protozonires puthogènes furent isoles à peu près aussi frequemment que chez les soldats ayant séjourné dans le bassin méditerranéen. On isola un eas de l'Isospora hominis. Les traitements employés et les méthodes de contrôle sont rapportées. JEAN SAUCIEE

Most important of all, the psychiatrist must express himself in terms which can be understood by every medical practitioner, and psychiatry must be made an integral part of medicine. It does not take a great mind to make simple things complicated, but it takes a very great mind to make complicated things simple. Let psychiatrists, then, distinguish between psychiatric sense and psychiatric nonsense and bring simple, hard-headed sense into this field, which contains the greatest public health problem in the world today.—C. C. Burlingame, J. Am. M. Ass., 133: 974, 1947.

PLEURAL EFFUSIONS AND TUBERCULOSIS**

John F. Paterson, M.D., M.R.C.P.

Toronto, Ont.

FLUID in a pleural sae is a common clinical finding and has many eauses. It may be due to transudation, exudation or rupture of a vessel. It may be serous, purulent, bloody, chylous, pseudo-chylous, ehyliform, bilious or may even consist partly of stomach contents. It may be caused by such conditions as eardiac failure, renal failure, pulmonary infarction, various neoplasms and infections both above and below the diaphragm and by injuries of the chest,

Among these conditions there is a well known and common clinical picture. It is that of a young adult, often previously healthy, who in a few hours or days develops malaise, fever, pain in the cliest on breathing, shortness of breath and a dry cough. He may have felt tired and a little short of breath for several When examined he has signs of fluid in a pleural sac, often with a friction rub above the area of dullness. The aspirated fluid is straw-coloured and may clot on standing. contains some cells most of which are lymphocytes. No organisms grow in cultures from it in nutrient broth or on blood agar. His tubereulin test is positive.

He is nursed in bed. His fever falls by lysis in a few days or weeks and the fluid is absorbed in a few weeks or months. After other possible reasons for the effusion have been discarded, a diagnosis of idiopathic plenral effusion is made and the words, "presumably tuberculous", are often added.

A pleural effusion in such patients is presumably tuberculous for the following reasons:

(1) The tuberculin reaction is positive. (2) The fluid resembles that found in effusions into serous eavities where the cause is proved to be tuberculous. (3) If enough of the fluid is citrated, centrifuged and examined, tubercle bacilli can be cultured in many cases. (4) In some patients, active tuberculosis can be found either in the lung or elsewhere in the body. (5) Experience has shown that many such patients, particularly if they are inade-

quately treated, later develop tuberculous disease either in the lungs or elsewhere.^{2, 3, 4} (6) Post mortem examinations show that tubercles are present on the pleura or in the underlying lung.

The clinical picture described above is common, but although absorption of the fluid without apparent complication by other tuberculous disease is usual, many patients do not have such a satisfactory result.

 Λ tuberculous pleural effusion may not be just a tuberculous infection of the pleura, but may be a signal that the patient is afflicted with active tuberculous disease somewhere else in his body. The disease may be in the underlying lung and may be seen as a shadow on a skiagram either before the effusion appears, when it is present or after it has been absorbed. It is unreasonable to believe that there is no disease in the underlying lung just because a postero-anterior skiagram shows no shadow of it. It is well known that such a skiagram does not show a shadow of all parts of the lung, for example those parts behind the heart or below the level of the domes of the diaphragm. Furthermore, tubereles in the lung may be too small to be seen by the naked eye, even post mortem, and therefore cannot show as shadows in a skiagram. Also, active tuberculous disease may not be present in the lung, but may be clsewhere in the body. It is almost as misleading to call a tuberculous effusion just a disease of the pleura, as it is, for example, to call crythema nodosum, cutaneous sarcoid, eutaneous syphilide or even small pox, just skin diseases.

The purpose of this paper is to illustrate some elinical aspects of pleural effusion, some ways in which therendous disease may show itself in patients who develop such an effusion, and to show how an effusion may appear as a signal of activity in patients known to have tuberculous disease elsewhere in the body.

The patients described are from a group of 271 with active tuberculosis admitted to a Veteraus' hospital between May. 1945, and August. 1946. In this group the tuberculous lesions which were most apparent when active tuberculosis was first found were as follows: pulmonary tuberculosis minimal 91; moderately advanced 61: far advanced 24; bone and joint 4; genito-urinary 3; pleural effusion 87; peritonitis 1.

^{*} From a clinical meeting of the Kingston and Frontenac Medical Society at the Department of Veterans' Affairs. Kingston, Ontario, May 6, 1946.

At the time the tuberculosis service opened, many patients were transferred from other hospitals because they did not need surgical treatment for their disease. This series, therefore, is not typical of all tuberculous veterans of Canada's Armed Services. The incidence and significance of pulmonary tuberculosis and of pleural effusion in the Canadian Army from 1939 to 1944 have already been discussed by Adamson and others.¹

It is regretted that the clinical and bacteriological findings when the disease was first found in these patients are not always known. This is understandable when it is realized that many of these men developed their diseases during active operations in Europe.

ILLUSTRATION OF A MODE OF INFECTION

C.H.S., male, aged 27 years. In civilian life he had been a registered nurse. He had periodic skiagrams of the chest and tuberculin reactions, which had always been negative. In April, 1945, they were still negative. On May 5, 1945, he accompanied, from a sanatorium in Ontario to Winnipeg, a patient who had pulmonary tuberculosis with positive sputum and who was not careful about his cough.

In the middle of June, 1945, he developed gradually increasing malaise, shortness of breath and pain in the left_chest on breathing. On June 25, he was found to have a left pleural effusion. His theoreulin reaction had become positive. The fluid was straw-coloured and contained many leucocytes, which were mostly lymphocytes. Tubercle bacilli were cultured from it. He was treated with rest in bed and the fluid was gradually absorbed.

In October, 1945, he became worried over conditions at home and a skiagram showed that the fluid had increased. After his worries were relieved, the fluid continued to be absorbed and by December, 1945, a skiagram showed the left diaphragm pulled up and the costo-phrenic angle obliterated, but very little residual pleural thickening. He started gradually increasing activity and at present is well.

THE PROOF OF THE CAUSE

L.R.C., male, aged 23 years. In December, 1945, he had a cough and a little sputum, but he did not feel ill. On January 5, 1946, he was discharged from the Army and on routine examination his physical signs and skiagram of the chest were described as normal. On January 8, 1946, he developed malaise, chills and pain in the left chest on breathing. He thought he had malaria again, which he had had two years before in Italy. On January 15, he came to hospital. His temperature was 100° F., pulse 76 and respiration rate 24. There were physical signs of a left pleural effusion. No friction was heard. A skiagram of the chest showed an opacity obscuring the lower part of the left lung with a crescentic shadow following the front of the left fifth rib. His tuberculin reaction was positive. Six hundred e.e. of opalescent straw-coloured fluid, which were aspirated, contained a few lymphocytes and crythrocytes. No organisms grew in nutrient broth or on blood agar. A diagnosis of idiopathic pleural effusion, presumably tuberculous, was made.

He was kept in bed and his temperature fell by lysis in 37 days. Serial skiagrams showed that the opacity had almost disappeared and no shadow suggesting pulmonary tuberculosis could be seen. No tubercle bacilli were cultured from the pleural fluid. However, although his sputum on January 19 and April 16 showed

no acid-fast bacilli on direct smear, tubercle bacilli were grown from both specimens on culture media. The skiagram made at the time of his discharge from the Army was obtained; a small irregular shadow 1.5 cm. in diameter was seen near the front end of the left seventh rib.

It was concluded that he had minimal basal pulmonary tuberculosis which was obscured on the skiagram after the effusion developed, but which showed as a shadow on a skiagram three days before his symptoms began. This was probably the source of the tubercle bacilli in his sputum,

BILATERAL PLEURAL EFFUSION PROGRESSING TO TUBERCULOUS EMPYEMA

D.J.S., male, aged 26 years. In December, 1944, he developed pain in the left chest and shortness of breath. He carried on his ground duties in the R.C.A.F. He was not admitted to hospital until February, 1945. Physical signs and skiagram suggested a left pleural effusion. His tuberculin reaction was positive. Aspiration was tried, but no fluid was found. He was treated with rest in bed.

He was repatriated in June, 1945, and given two weeks' sick leave. While at home he "caught cold" and when re-admitted to hospital, he was found to have a right pleural effusion with pleural thickening on the left. He was again treated with rest in bed, but in November, 1945, the effusion had increased. Straw-coloured finid was aspirated which contained numerous lymphocytes. No organisms grew from it in nutrient broth or on blood agar and no tubercle bacilli were cultured from it. On January 18, 1946, aspiration was repeated on the right and tubercle bacilli were cultured from the fluid. On February 19, 100 c.c. of thin purulent fluid were aspirated from which acid-fast bacilli were found in the centrifuge deposit.

During the period of transition from pleural effusion to tuberculous empyema he had no symptoms, was afebrile and steadily gained weight. His erythrocyte sedimentation rate was not greater than 14 mm, in the first hour (Westergren).

RIGHT PLEURAL EFFUSION; LEFT PLEURAL EFFUSION; DEATH FROM MILIARY TUBERCULOSIS

H.A.McL., aged 35 years. On January 21, 1946. on routine physical examination his physical signs and skiagram of the chest were described as normal. On April 6, he developed malaise, pain in the right side of the chest on breathing and shortness of breath. Physical signs and a skiagram showed a right plenral effusion with no apparent disease in the lung. He was admitted to a civilian hospital where straw-coloured fluid was aspirated which contained numerous lymphocytes. A guinca pig inoculated with it showed no tuberculous lesions after eight weeks. He was treated with rest in bed, but the effusion increased. On May 27, pleural friction was heard on the left side and an effusion developed.

On July 4, 1946, he was transferred to this hospital. His temperature was 102° F., pulse 140, and respiration rate 30. He was slightly evanosed and orthopoxic. There were signs of bilateral pleural effusion and numerous medium rales were heard in both lungs. His abdomen was distended, but no ascites was found. His tuberculin reaction was positive. No tubercle Lacilli were found in his sputum. A skiagram showed shadows suggesting bilateral effusion and an irregular moderately coarse mottling throughout both lungs. Aspiration was done on both sides, but no greater quantities than 150 c.c. of straw coloured and sero-sanguinous fluid were obtained.

A skingram made when he enlisted on January 6, 1941, was normal. One made at the time of his discharge from the Army on January 21, 1946, had been reported as normal, but when compared with his enlistment skingram showed a definite increase in the shadow in the right hilum suggesting a mass of enlarged lymph nodes measuring 3 x 5 cm.

A provisional diagnosis was made of bilateral pleural effusion, presumably tuberculous and probably associated with disseminated pulmonary tuberculosis and possible miliary spread. There was irregular fever up to 102.8° F. His pulse rose to 150 and his respiration rate to 40. His total lcucoeytc count, which had been 10,750 per e.mm. at the onset of his first effusion, rose to 20,100 of which 86% were polymorphonuclear. He died on July 26.

Post mortem examination showed generalized miliary tuberculosis. The layers of the pleura on both sides were adherent with shaggy masses of fibrin. Small pockets of straw-coloured fluid were present. There were inof straw-eoloused fluid were present. numerable fine miliary tubercles with many larger tubercles measuring up to 4 mm. in diameter in both lungs. Several similar large tubercles were also present in the kidneys and spleen. In the right hilum were four enlarged caseous lymph nodes measuring 1.5 cm. in diameter. There was no similar enlargement on the left.

It was concluded that, at the time he was discharged from the Army in January, 1946, caseous lymph nodes were present in the right hilum and that his pleural effusions were a signal that he was suffering from disseminated tuberculosis. From a clinical point of view, however, he had signs and symptoms of so-called idiopathic pleural effusion, presumably tuberculous. It was not until three months after the onset of the first ef-fusion that a skiagram showed shadows suggesting pulmonary tuberculosis.

CONSECUTIVE BILATERAL EFFUSION ASSOCIATED WITH TUBERCULOUS ARTHRITIS

E.B., male, aged 23 years. In January, 1945, his left knee gradually became painful and swollen. Tubercle bacilli were cultured from the finid from the joint. His knee was immobilized in a cast. In March, 1945, he developed a left pleural effusion. Aspiration was done, developed a left pleural chusion. Aspiration have but no report on the fluid is available. In April, he but no report on the fluid is available. The developed tuberculous arthritis of his left elbow. The joint was immobilized in a cast. By May, a skiagram showed that his left pleural effusion had been absorbed leaving very little pleural thickening.

In November, he developed pain in the right side of

the chest on breathing and a skiagram showed an irregular shadow measuring 1 cm, in diameter in the right fifth interspace in front. The pain continued and he developed pleural friction and a right pleural effusion. By March, 1946, the fluid had been absorbed without aspiration and had left only a little pleural thickening. No tuberele baeilli grew-in cultures from sputum or gastric washings.

He is described as an example of a patient, known to have active non-pulmonary disease, in whom pleural effusions appeared as signals of activity.

TUBERCULOUS PERITONITIS, FOLLOWED BY RIGHT PLEURAL-EFFUSION, PULMONARY TUBERCULOSIS, THEN LEFT PLEURAL EFFUSION

E.G., male, aged 29 years. In June, 1944, he grew thin and his abdonuen swelled. He landed in Normandy on July 15, 1944, and was 28 days in action in the infantry. He was wounded in the head and was evacuated because of his wound. While in hospital 2,200 c.e. of fluid were aspirated from his abdomen and tubercle bacilli were cultured from it.

In November, he developed a right pleural effusion. By March, this had been absorbed without aspiration leaving very little plcural thickening. In September, a skiagram showed some fine mottling in the upper half of the left lung. In January, 1946, tuberele bacilli were cultured from concentrated sputum and gastric washings. On May 6, he developed a small left pleural effusion. By May 29, the fluid had been absorbed without aspiration and had left only a little pleural thickening.

LEFT PLEURAL EFFUSION, FOLLOWED SUCCESSIVELY BY TUBERCULOUS PERITONITIS, RIGHT PLEURAL EFFUSION, PULMONARY AND GENITO-URINARY TUBERCULOSIS

D.M., male, aged 32 years. In July, 1942, he developed a left pleural effusion: 1,900 e.e. of fluid were aspirated and were replaced with air. No report of the

fluid is available. He spent three months in bed. In November, he started work operating his own store and was advised "to take things quietly", but he considered this to include deer hunting.

In April, 1943, he developed abdominal pain and distension for two weeks. A laparotomy was done and tuberculous peritonitis was found. After three weeks he was discharged to his home. He "took things quietly", but this included fishing during which he 'canght cold'; he developed a pain in the right chest on breathing. He was admitted to hospital and was told he had a right pleural effusion. No aspiration was done. He returned home after three weeks and "took things quietly ". In April, 1945, he had some pain in the back after lifting heavy packing eases. A skiagram of his spine and ehest were made and he was told he had tuberculosis of the lungs.

In July, 1945, he was admitted to hospital. On physical examination there was some flattening and loss of movement of the left side of the chest with diminished breath sounds. Otherwise there were no abnormal signs. Tuberele baeilli were not seen in nor eultured from his sputum or gastric washings. A skingram of the elect showed flattening of the left diaphragm and a homogencous shadow running upwards along the side wall of the chest and over the apex suggesting pleural thickening. The right diaphragm was also flattened and there was mottling and streaking in the right apex and first and second interspaces. He was treated with rest in bed and seemed to improve.

In February, 1946, he felt well and had no symptoms suggesting pulmonary or genito-urinary tuberculosis. However, pus cells were found in his urine and tubercle bacilli were cultured from it. In March, he developed a left epididymitis. The epididymis was excised and was found to contain an abscess which was lined with tuberculous granulation tissue. An excretion pyelogram showed an irregularity of the upper cally of the left kidney. Cystoscopy showed no tuberculous cystitis and specimens from both urcters failed to show tubercle bacilli on culture media. In May, 1946, a skiagram of the chest showed no change from that taken in July, 1945. He felt quite well and in spite of being told that he had active tuberculosis he discharged himself from hospital against medical advice.

- Discussion

A few clinical histories have been given to illustrate how a pleural effusion may show itself and how it may serve as a signal that a patient has active tuberculosis. It is emphasized that the patients described are not all average patients with pleural effusions, but are selected for the purpose of illustration. picture is therefore gloomier than is usual with most patients with pleural effusion.

The diagnosis of pleural effusion secondary to non-tuberculous disease is usually not difficult. However, the question sometimes arises whether a so-called idiopathic pleural effusion should be presumed to be tuberculous or whether it is secondary to other disease, in particular to pneumoeoecal pneumonia treated by a sulfa compound or penicillin or to primary atypical pneumonia.1 The risks attending an inadequately treated tuberenlous effusion are so great that it is wiser to make a diagnosis of presumably tubereulous effusion unless there are firm grounds for a diagnosis of non-tuberculous disease to which the effusion might be secondary.

It is now generally agreed that a patient who has a proven or presumably tuberculous pleural effusion must have prolonged treatment by rest and that he must be examined clinically and skiagraphically at intervals after the apparent arrest of the condition. A patient with an uncomplicated pleural effusion should rest in bed for a minimum of three months and should only gradually increase his activity during a further minimum period of three months in a hospital or sanatorium. The results of adequate treatment by rest of such patients are good. If complications are present, longer rest with treatment for the complications will be necessary.

With regard to the treatment of the effusion itself, aspiration should only be done for the following reasons. (1) For diagnosis, 300 to 500 c.c. if possible should be removed, citrated and examined microscopically and by culture or by inoculation into a guinea pig. (2) For the relief of dyspnæa, it may be necessary to repeat aspiration and remove 500 or 600 c.c. several times if the fluid re-forms. (3) To see if an effusion, which fails to be absorbed, is becoming an empyema, it may also be necessary to repeat aspiration. (4) Aspiration and replacement pneumothorax is sometimes done for the comparatively rare patient, who is found to have eo-existing pulmonary tuberculosis which needs treatment by collapse, but the danger of causing a tuberculous pyopneumothorax should be remembered. It is doubtful whether repeated aspirations or replacement pucumothorax are of greater benefit than rest alone for a patient with an uncomplicated effusion.

Rehabilitation and adequate after-eare and follow-up are important. It is our practice in this hospital, both in the case of patients with pleural effusion and those with proved pulmonary tuberculosis, to assist each man to plan his future at a conference with him when he is first admitted to hospital and again shortly before he is discharged.

Following discharge, patients who have had a pleural effusion should be examined after one month and then at least every three months for the first year, after which, depending on progress, the intervals may be increased to six months for at least five years after the onset of the effusion. Re-examination of such patients just by a skiagram of the chest is not enough. A complete physical examination including urinalysis and examination of sputum, if there is any, must also be done at each visit to find out if other tuberculous disease is developing.

SUMMARY

A pleural effusion, proved or presumably tuberculous, is not just a disease of the pleura, but a signal that the patient is afflicted with active tuberculous disease somewhere in his body.

Illustrations are given to show the clinical importance of pleural effusions in relation to tuberculous disease.

The importance of adequate treatment, rehabilitation and follow-up are stressed.

REFERENCES

- ADAMSON, J. D., WARNER, W. P., KEEVIL, R. F. AND BEAMISH, R. E.: Canad. M. A. J., 52: 123, 1945.
- 2. GAARDE, F. W.: J. Am. M. Ass., 95: 249, 1930.
- 3. BEAL, J. R.: Brit. J. Tuberc., 51: 34, 1940.
- FARBER, J. E.: New Eng. J. Med., 228: 784, 1943.
 TRUDEAU, F. B.: Am. Rev. Tuberc., 39: 57, 1939.

RÉSUMÉ

Un épanchement pleural est toujours sérieux. Il ne constitue pas simplement une maladie de la plèvre, mais il est le signal d'alarme d'un état général sérieusement atteint, et habituellement par le bacille de Koch. Il faut en pareil cas rechercher activement ailleurs l'infection tuberculeuse et soumettre les malades à la eure de repos de la tuberculose. On ne peut trop insister sur le temps du diagnostic complet et sur l'importance de suivre ces malades longtemps en leur appliquant les meilleures méthodes du traitement de la tuberculose.

JEAN SAUCIER

THE CHINESE WAY .- One of the Assistant Secretaries at B.M.A. Headquarters the other day received a visit from Dr. Chu, president of the Medical College in Shanghai and treasurer of the Chinese Medical Association, and was rather struck by one remark he made which revealed the refreshing insight which the East often displays in contact with the West. Dr. Chu is here studying, among other matters, the impact of medicine on the State-or should it be the impact of the State on medicine? Asked what he considered to be the chief duty of the Chinese doctor in relation to the State, his reply was. "To educate the Government". Perhaps the Chinese Government is more easily educable than governments of the West, but sometimes one has thought that the result of the relationship of the doctor and the State has not been to liberalize the Government but to rigidify the doctor.—Brit. M. J., March 15, 1947.

SOCIAL THERAPY OF EPILEPSY*

William G. Lennox, M.D.

Boston, Mass.

ightharpoonup /
m ORDS about the medical or surgical treatment of epilepsy would indeed be coals carried to this Newcastle of research and therapy. The world of epileptics has long been in debt to Dr. Penfield and his physician associates. Because of the work of these-and others -epilepsy can no longer be considered an incurable disease. Last winter in Boston I gave a course of six popular lectures on the subject, "Epilepsy, the Hopeful Disorder". This disorder has so many aspects, so much has been learned about it, that six hours were too few in which to tell the story. In these minutes which are before us only one facet, social therapy, can be considered. Advances in this field have lagged behind the advances of medicine and surgery.

Treatment of the epileptic is divided roughly into two parts: first, medical, and second, psychological and social care. These two are interdependent. With the cessation of seizures, social problems may magically disappear. However, when seizures resist therapy, non-medical treatment may constitute the only means of help, and even patients relieved of seizures may have psychological and social sequele.

Efforts of the social therapist (this term seems more descriptive than "social worker") lie in two fields: The first is the individual: the personal problems which confront both the person subject to seizures, and those near to him. Problems begin in childhood. How to institute careful treatment without arousing childhood fears and frustrations? To punish or not to punish a child whose misbehaviour may be only an expression of his illness. Parental oversolicitude may be matched by resentment that this illness-of all illnesses-should be visited on this pure family stock. Anxiety, fear, shame are contagious and the child may "catch" these debilitating attitudes from family or playmates. Obstacles clutter the path of his advance. There are psychological blows from thoughtless schoolmates and don't-want-to-be-bothered teachers. raiere is social isolation—prohibitions all the way from attending a dance to driving a car

From the Children's Hospital, Boston, Mass.

or fighting a war. Doors are closed on employment, doubts assail over questions of marriage and children. All this and more too on a person who, as likely as not, is the peer of his unobstructed fellows.

These problems are formidable but not insoluble. A social therapist endowed with sympathy and resourcefulness can be of decisive assistance. However, the relative importance of the various problems and the best ways of meeting them have not been adequately set forth. Mrs. Davidson of this Institute* has realized this need, and is conducting a special intensive study and follow-up of some 300 epileptic patients attending the epilepsy clinic of the Iustitute. Long term support should be provided for this valuable investigation.

The second phase of social therapy deals with the public. It seeks to alter the prevailing sentiment about epilepsy and epileptics, to raise the temperature of the social atmosphere which surrounds the patient. Although no longer at zero, the temperature does not encourage the flowering of the individual's innate capacities.

Education of the public must do away with certain popular fallacies, such as the following: the cause of epilepsy is unknown: the progress of the disease is progressively downward; there is no effective treatment: mental deterioration is inevitable; inactivity is desirable; epileptics cannot marry or hold responsible positions. Each and all of these statements is false. Only persistent dinning of the true facts into the ears of the public will change these misconceptions.

Unfortunately, past ignorance is built into the structure of our laws. These laws take no account of the uncertainty of accurate diagnoses, of the fact that the causes of epilepsy are manifold, or of the fact that the seriousness of individual cases varies from near zero to near 100%, that once an epileptic does not necessarily mean always one. The laws which affect epileptics have not been coded—they vary with the States—but their fingers have a rigor mortis grip on many of the activities of normal persons who are only paroxysmally ill.

Certain limitations are just and in the public interest but are unfairly discriminatory. Thus, the alcoholic is 100 times more responsible for automobile accidents than the epileptic, yet alcoholics are not required to specify their illness on the application blank for a license to drive, nor are doctors in California required to

^{*} Given at the Montreal Neurological Institute, December 21, 1946.

^{*} The Montreal Neurological Institute.

report their alcoholic patients, as they must report those who are epileptic. Again, epileptics cannot enlist in the armed forces of the United States. Certainly no one wants an epileptic to earry an atomic bomb, but many epileptics would fill non-combat positions more acceptably than the average draftee. The clevation of morale which would follow permission to enlist would be of great value.

Three obstructions which cannot be defended may be mentioned. Immigration laws forbid more than temporary entrance to any person called "epileptie"—presnmably a person who has ever had seizures. For example, a patient highly intelligent, wealthy and influential in his city in South Africa, came to the United States for treatment. On reaching port he was kept aboard ship for three days till a bond had been secured and posted. He wished to visit a relative in Toronto, which was apparently arranged after calling on eonsulates in Washington, but at Canada's border he was put off the train and forced to return to the States.

Taking no account of whether the person's seizures are genetic or aequired, the statutes of certain States say an epileptie may not marry and that even those who assist in the marriage are subject to fine or imprisonment. These laws are hoary with age, but in the last session of the United States Congress, Senator Capper introduced a bill which by federal law forbade mar-(I believe it died in riage of an epileptie. Without doubt, a tendency to eommittee.) scizures may be transmitted, but the weight of this tendency and its relative importance with respect to desirable hereditary traits require individualized and not blanket rules. This subject is dealt with in an article. "Marriage and Children for the Epileptic".1

The highest legal obstacle of all, the Workmen's Compensation Act, is designed to protect the employee who is injured while at work. For fear of higher insurance rates, the employer will not accept the epileptie, but because the tendency to seizures (unlike most physical ailments) is not detectable, many patients are employed in unsuitable positions. There is no evidence that epilepties, or other handicapped persons, have a high accident rate. There should be provision for waiver of compensation, or else for industry or the buying public to assume whatever risks are entailed.

I place before you exhibit A. An epileptic who had an occasional seizure on medication

which was probably inadequate had been employed for years by the Massachusetts General Hospital, the second oldest hospital in the United States. This man left his employment to settle sonie domestic affairs and when he returned the hospital had adopted an insurance policy, and its legal representative advised that this man should not be re-employed, although the hospital-hard pressed for help-desired his services. Massachusetts law provides for waiver of compensation, but the State Board refused the request of the patient and of the hospital, saving the man might fall down a hospital stairway. (He lives on the third-floor of an elevatorless apartment house.) The hospital is supported by donations for the benefit of the siek and disabled (including epileptics). The M.G.H., as it is ealled, pioneered medical research in epilepsy: it pioneered medical social service whose workers must find employment for epileptics in industry. Yet this hospital is in the embarrassing position of asking others to help the sick that the hospital itself will not help.

Employment is a hard nut to crack. A nuteracker sufficient for the task will need sharp jaws and long arms made of widespread public indignation and conjoined efforts. A small example of what can be done is the alteration of a law of New York State which forbade jobtraining to epileptics because they were considered unemployable.

Social handicaps for the epileptie are not only legalistic but even more important, they represent general public misapprehension. Especially devastating is denial of education to these patients who depend on learning as an aid to white collar employment, to self-confidence, and to relief from seizures. (Activity of body and brain is a preventive of seizures.) Whether a patient secures his right to an education seems to depend on the attitude of teacher or superintendent, or on the vigour of the objections of parents of other students. The going gets tongher with the higher grades. True, a minority of patients with epilepsy have an impaired mentality, but the great majority are of average intelligence or better. The majority of patients are seen by physicians in their offices. Wechsler-Bellevue test given to 200 of my private patients disclosed an I.Q. well above the "normal" average. One-third were above 120, in the group termed superior.

The American Epilepsy League with the financial aid of the Bay State Society for the

Crippled and Handicapped has recently made a survey of the attitude of schools of higher education in the United States and Canada, Seventeen hundred were asked to give their provisions, if any, for the admission of epileptic students who fulfilled academic requirements; 39% did not reply; 10% did not admit students; 34% had formulated no rule, and 17% admitted students if certain conditions were fulfilled. Liberal arts colleges are more ready to admit than those with specialized training, such as literary, religious or scientific schools. Larger schools expressed more willingness to accept epilepties than smaller schools, but the latter had the larger number of epileptics per 1,000 students enrolled.

Based on draft figures in the previous World War, the one million students of the United States would contain something like 5,000 epilepties. But only one-third of this number, or less than 1,700 might be of superior intelligence and hence be "college material". The actual number, based on the replies to the questionnaire, is about 500, or one-third of the number intellectually eligible. As pointed out in testimony given before a committee of the United States House of Representatives,2 there is in the United States almost no provision for education and medical treatment of intelligent children whose attacks are too frequent to permit attendance at regular schools.

The problem of epilepsy is economic, and not just sentimental. A half million epileptics in the United States who are denied the right to work must be supported by somebody. The bill may amount to 100 million dollars a year. Some of these, perhaps 10 to 20% of the total, either because of eonvulsions which resist all treatment, or sadly impaired mentality, or both, require institutional care. The public has assumed this burden—though often inadequately. Almost wholly neglected is the much larger and more hopeful group of patients, those with good intelligence, who, given modern medical eare, might be made seizure-free, and given training might be productive members of society.

Dieppe House, near Montreal, which has been built through the energy of Mr. George A. Savoy, with the assistance of the excellent doctors and social workers of Montreal can become a model for the continent. By the term "model" we mean medical and social treatment which will make the largest number of persons self-supporting members of the community. Numbers helped depends more on turnover than

on bed capacity, and turnover depends on the aid of medical and social workers experienced in solving the problems of epilepsy. you have in Montreal in abundance.

Doubtless many of the patients at Dieppe House will be reterans of the war. Those whose epilensy is the result of battle wounds of the brain require expert surgery. In the United States, where we anticipate having 50,000 cpileptic veterans, seven or eight thousand of them post-traumatic, plans for improved treatment over that given to veterans of the previous war depend in large part on centres set aside for research, and improved social care.

I-am sure that you have anticipated in your mind my last point, namely, that the needed social therapy for epileptics cannot be compassed by the professionals concerned: social workers, doctors and nurses. Public-spirited and social-minded eitizens, educators, employers, taxpavers and, of course, epileptics and their relatives must pull together to achieve justice, health and the judicious expenditure of public and private moneys devoted to the siek.

In order to mobilize public support, the American Epilepsy League was organized in This society with its headquarters at 50 State Street, Boston, now numbers more than 2,000 members, many of whom reside in Canada and in various foreign countries. This organization answers as best it can the appeals for information and help from patients everywhere: it distributes literature, including a book for popular consumption;3 it supplies magazine and newspaper articles and encourages gifts for research. Local branches for the support of local enterprises are organized in cities which have been aronsed to the opportunities of medical and social advancement in this field. Canada and the United States have many purposes in com-Surely one of these is the common determination to drive seizures from the brains, and the fear of seizures from the minds of men.

REFERENCES

- 1. Marriage and Children for the Epileptic. Human Fertility. 10: 97, 1945.

 2. Hearings on Aid to Physically Handicapped (Committee on Labour—Sub-committee on Aid to Physically Handicapped, House of Representatives, Seventy-ninth Congress, H. Res. (45: Part 11, Epilepsy, May 24 and 25, 1945).

 3. Science and Seizures. New Light on Epilepsy and Migraine, Harper and Brothers, New York, 1946.

RÉSUMÉ

En plus d'être soumis à un traitement médicochirurgical, l'épileptique doit également recevoir des conseils et des soins d'ordre psychologique et social. Ces diverses mesures sociales s'adresseront à l'épi leptique d'abord, mais aussi au grand public, qui ignore

out des multiples problèmes associés à cette maladie. Le malade devra reprendre confiance en lui et éviter l'isolement moral. Le public sera éclairé et ses préjugés seront discutés, puis dissipés. Certaines lois troprigides devront être rêvisées. On devra également rescinder les législations des accidents du travail et les conditions d'admission aux écoles et universités. On songera enfin, à l'aspect économique du maintien de 1/1000 de la population.

JEAN SAUCIER

A CULTURAL STUDY OF RINGWORM®

C. W. E. Danby, M.D. and R. Forsey, M.D.

Montreal General Hospital, Montreal, Que.

THIS report is based on a series of 100 cases of suspected ringworm infection seen at the dermatological clinics of the Montreal General Hospital and the Queen Mary Veterans' Hospital, Montreal, during the past eleven months. Early in this series we were unable in some cases to grow the causative fungus but with increasing 'practice our percentage of "positives" increased appreciably.

The cultural methods may be outlined as follows: Suspected materials from the cases in question were collected in sterile test-tubes without attempting to remove surface organisms by means of antiseptics and transferred in the laboratory to sterile petri dishes and allowed to dry for 5 to 7 days. Either immediately or later, direct microscopic examination for fungi was done using potassium hydroxide 15%. With a sterile scalpel any suspected material was cut into pieces not more than a millimetre in any dimension and planted on Sabouraud's medium; in test-tube slants made so that the planting surface was approximately 10 cm. in length, affording room for ten "plants". Three such tubes were used for each specimen. These cultures were stoppered with cotton wool, kept at room temperature. Subcultures were done if necessary when contaminants appeared. To observe microscopic morphology, hanging drops of Sabouraud's agar were made and petri plates of Sabouraud's medium were used to grow giant cultures. Preservation of cultures was done, killing them by exposure to formalin vapour.2, 3

We found that a satisfactory method of preserving giant cultures was to seal the petri dishes with paraffin wax. When the culture is killed, the inverted bottom of the petri dish is dipped in hot paraffin so that merely the edge is immersed. The lid of the petri dish is now applied and the two pressed together, the wax sealing the culture permanently.

From 100 cases of suspected ringworm infection, 60 cases were identified as due to fungus. Table I shows the incidence of various fungifound.

TABLE I.

Number of Various Organisms Identified

	Cases	Percentage
Trichophyton gypseum	. 25	41.7
Trichophyton purpureum	. 14	23.3
Microsporon lanosum	. 8	13.3
Microsporon audouini		5.0
Mierosporon fulvum	. 1	1.7
Epidermophyton inguinale	. 3	5.0
Monilia albicans		3.3
Malazzesia furfur	3	5.0
Actinomyces tenuis	1	1.7
·		
Total	60	100

The most common variety, Trichophyton gypseum, which was present in over 40% of positive cultures was not divided into its several variants. It is interesting to note the relative frequency of Trichophyton purpureum, 23.3%. This species has been described as "frequently found in the tropies and also in China, Japan and the southern part of the United States". Since a number of the patients in this series saw service in the armed forces, it is suggested that some of these infections may have been imported, when one recalls how chronic and refractory to treatment are lesions due to this fungus.

The microsporon group, next in order of frequency, revealed the animal type, Microsporon lanosum, to be almost three times as frequent as the human type, Microsporon audouini. Burgess' reported them to be of almost equal frequency in Montreal in 1925. The case due to Microsporon fulvum was one of a child with a solitary circular area 5 cm. in diameter with a raised erythematous, minutely vesicular advancing border with clearing centre on the outer aspect of the wrist.

Only three ont of eight clinically diagnosed cases of Tinea cruris grew Epidermophyton inguinale. One was due to Trichophyton gypseum and one showed mycelial elements and spore clusters characteristic of Malazzesia furfur but failed to grow on Sabouraud's medium.

Malazzesia furfur was more frequent than these figures would indicate. Only three cases of Tinea versicolor are reported and attempts to culture this organism on a variety of media were unsuecessful.

Monilia infection accounted for two cases: one of onychia of the thumb and the other intertrigo of the interdigital webs of the toes.

The various fungi responsible for ringworm infection in different locations and for different

^{*} From the Department of Dermatology, Montreal General Hospital.

t The medium used here was DIFCO. Sabouraud's dextrose agar containing: peptone 10 gm., dextrose 40 gm., agar 15 gm. in 1,000 c.c. distilled water.

types of lesions are shown in Tables II to VI. Of 47 cases suggesting a diagnosis of ringworm of the feet, 24 showed mycelial elements on direct examination yet 28 yielded a positive culture. It should be indicated that at commencement of this study only those specimens showing positive direct examination were cultured. These figures show the advisability of culture regardless of microscopic findings.

TABLE IL TINEA PEDIS :....

TINEA PEDIS	
Number of cases : 47 KOH positive : 24 KOH negative : 23 Not identified : 19 Identified : 20	
T. gypseum	
Total	
TABLE III.	
TINEA CAPITIS	
Number of cases\$KOH positive\$KOH negative0Not identified1Identified	
M. lanosum	
Total 7	
TABLE IV.	
TINEA CORPORIS (INCLUDING FACE)	
Number of cases 26 KOH positive 16 KOH negative 10 Not identified 9	
Identified T. gypseum 2 T. purpureum 4 M. lanosum 3 E. inguinale 3 M. audouini 1 M. fulvum 1 M. furfur (not cultured) 3	
Total 17	
TABLE V.	
Onychomycosis	
Number of cases 10 KOH positive 6 KOH negative 4 Not identified 6 Identified 7. purpureum 3	
M. albicans 1	
Total 4	

Only 8 cases of ringworm of the scalp were encountered or 13.3% of all cases showing presence of pathogenic fungi. In a series of 99 positive cultures of ringworm infection reported in Montreal in 1925, the incidence of scalp infection was 62%.

In ringworm involving the face and body, seven types of fungi were identified and except for Microsporon audouini and Microsporon fulvum (one each), the incidence of each of the other species was almost equal with Trichophyton purpureum, the most frequent. This group includes cases of Tinea cruris. The disparity between the numbers of positive direct examination and positive cultures here again illustrates the advisability of culturing specimens.

Onychomycosis occurred in six proved eases, though only four of these grew fungi. Three were due to *Trichophyton purpureum* and one to *Monilia albicans*,

Clinically typical kerion in various areas of the body and scalp were shown to have fungus present in 50% of cases. Three of these showed positive cultures: two *Trichophyton gypseum* and one *Microsporon audouini*. The lesion due to *Microsporon audouini* was on the sealp of a child and was perhaps best described as a "hypo-kerion".

TABLE VI. KERION

Number of cases KOH positive KOH negative Not identified Identified T. gypseum M. audouini

One reported case is of Leptothrix axillaris of which according to Castellani, Actinomyces tenuis is the causal organism. The nodes seen on the axillary hairs were of the common yellow variety.

Total

SUMMARY

The incidence of various species of fungi in the causation of different ringworm infections seen in the dermatological clinics of the Montreal General Hospital and the Queen Mary Veterans' Hospital, based on the identification of sixty positive cultures is reported.

The frequency of involvement of different parts of the body and causal organisms is included in the report, and the frequency of scalp ringworm in 1946 is compared with that in 1925. In the present series of 60 positive cultures of ringworm infection, the incidence of scalp involvement was 13.3%, whereas in 1925 it was 62%.

Cultures are indicated in cases where there is a negative microscopic examination.

A simple method of preserving giant cultures for teaching purposes is described.

We wish to thank Dr. J. Frederick Burgess, Chief of the Department of Dermatology, for the opportunity of making this study and for the benefit of his experience. We are indebted to Dr. J. E. Pritchard, Director of Pathology, for placing the facilities of his laboratory at our disposal.

REFERENCES

- MITCHELL, J. H.: Further studies of ringworm of the hands and feet, Arch. Dermat. & Syph., 5: 174, 1922.
- 2. Burguss, J. F.: Bull. Inter. Ass. Med. Museums, 11:

- BURGLESS, J. F.: Bull. Inter. Ass. Med. Museums, ... 61, 1925.
 Lewis, G. M. and Hopper, M. S.: Arch. Dermat. d. Syph., 34: 686, 1936.
 Idem: An Introduction to Medical Mycology, The Year Book Publishers, 2nd ed., p. 234, 1943.
 BURGFSS, J. F.: Arch. Dermat. d. Syph., 12: 853, 1925.
 CASTELLANI, A.: Arch. Dermat. d. Syph., 16: 383, 1927.

AEROSOL THERAPY®

M. Aronovitch, M.D., F.R.C.P.[C.];

Montreal, Que.

RY means of aerosol therapy, solutions are dispersed in-a cloud or mist, and carried directly to the mueosa of the tracheo-bronchial tree where they can exert specific antibiotic or physiological effects.3,5 The solutions are usually conveyed to the air passages, carried on a current of air or oxygen.

Attempts to treat the bronchial mucosa are, of course, not new in medicine. Many medicaments have been tried in the past-mostly of an aromatic nature, carried into the respiratory passages on a cloud of steam. Many ingenious pieces of apparatus have been devised to convey the steam to the bronchial tree with a maximum of comfort to the patient. Elaborate croup kettles and simple jars of steaming water still have a certain place in medicical treatment. Their beneficial effects are, however, more probably due to the steam inhaled than to any medication. Aerosol therapy, as we use the term today, does not concern itself with such methods, but rather with more direct treatment.

As used in hospital, this form of therapy is administered by means of a nebulizer and an oxygen tank. The solution to be used is placed in the nebulizer, and by means of a continuous blast of oxygen, is converted into a fine cloud or mist of very fine droplets which can be blown

or inhaled into the tracheo-bronchial tree. nebulizer may be made of glass or plastic. The ones we have used in this hospital have been made of glass. Various sizes are available, but essentially they consist of a fine glass atomizer. The atomizer spray is directed against a target which breaks it up into a fine cloud or mist which then issues from the mouth of the apparatus. The type of nebulizer we have found most useful for general use is the DeVilbiss No. 40.

The apparatus is connected to an oxygen tank which is usually run at 4 to 5 litres per minute. This oxygen flow will nebulize 1 c.c. of solution in about ten minutes or less. A "Y" shaped piece of glass tubing is inserted in the rubber tubing between the nebulizer and the oxygen tank. The free end of the Y is closed off by the patient's thumb or finger during inspiration but left open during expiration so that the nebulizer works only during the inspiratory phase of respiration and, accordingly, none of the solution is lost.

Instead of the oxygen tank, other methods of supplying air pressure may be used. A hand or foot pump can be attached to the nebulizer, and this can make a convenient apparatus for use in the home where it may be impracticable to supply oxygen tanks. The use of ordinary atomizers instead of nebulizers has been reported but is to be deprecated in infections below the vocal cords, as atomizers produce a spray of coarse droplets which are caught in the nose or pharynx, and do not penetrate deep into the bronchial tree. The fine mist of a nebulizer, on the other hand, contains few large droplets, so that the desired dose of medication can be delivered to the appropriate locality.

There may be two purposes in the use of such nebulized solutions. One is systemic therapy. Here one hopes for the rapid absorption of the medication by the large area of mucosa on which it settles. Some attempt has been made to use the sulfonamides in this way, but the most popular drug by far has been penicillin. This method of therapy has produced valuable results and makes it possible to use penicillin therapy in this way where it may be impracticable or undesirable to use the drug by injection, for instance, in the home where a nurse may not be~ available. It is hoped that the systemic action of penicillin is reinforced in these cases by its local action on the organisms in the bronchial tree, and possibly also in some alveoli.

^{*} A talk delivered to the Postgraduate Course of the American College of Physicians at McGill University, October 28, 1946.

i Lecturer in Medicine, McGill University; Assistant Physician, Royal Victoria Hospital.

It is to be noted that the blood levels of penicillin by the use of this method are not as high as by the use of intramuscular or intravenous injection. The intramuscular injection of 20,000 units of penicillin will give a blood level in the neighbourhood of 0.03 units per c.c. The aerosol use of a similar dose may give only a trace of penicillin in the blood although the clinical result in the patient may be the same. Absorption must occur since much of the penicillin can be recovered in the urine. In view of the low blood levels, however, the beneficial effects must be due to considerable local action.

The use of antibacterial agents in this manner is one of the most important uses of this method of therapy. Other medications can, however, be used for their physiological effects. In this connection, one must remember that the bronchial tree contracts and relaxes with respiration, and the bronchial mucosa may be congested or ædematous in various disease states. Medications directed to the bronchial tree by means of aerosol therapy can cause physiological alterations in such states.

It is with envy that, in the past, internists have viewed the direct approach of the ear, nose and throat specialists to the diseased conditions of the upper respiratory tract. When the nose is blocked the passage may be cleared, temporarily at any rate, by the application of an appropriate solution to the nasal nucosa. No such method could be applied to the bronchial nucosa except via the cumbersome method of a bronchoscope, and even here only the larger bronchi could be reached. Through aerosol therapy, an attempt may be made to apply such medications directly to the affected bronchi.

If, for instance, the bronchial mucosa is ædematous, engorged or swollen, application to it of some mucosal or vascular shrinking agent may modify the swelling sufficiently to allow ingress or egress of air. In the same way, if there exists some degree of bronchostenosis due to muscular constriction in the bronchial tree, the direct application of a relaxing agent to the bronchial mucosa may have more effect in relieving the constriction than parenteral injection. At the same time this method will be accompanied by less marked undesirable systemic side reactions as evidenced by the use of concentrated adrenalin solutions, with good local results, but without much rise in pulse rate or blood pressure.

It will be evident from the foregoing that aerosol therapy can be used in two entirely different ways in diseases of the respiratory system.

1. Specifically to combat bacterial diseases due to organisms which may be affected by various chemical or antibiotic agents. Here the diseases most usually treated are the bacterial pneumonias and acute tracheobronchial affections. Their treatment by this method can be highly successful. The dosage may have to be varied with the disease and the virulence of the organism. Usual doses are of the order of 25,000 to 40,000 units per c.c. every 3 hours.

The chronic infections of the bronchial tree have also been treated to a certain extent in this way. Some writers have elaimed some degree of success in the treatment of chronic bronchitis and bronchiectasis, for instance. However, no well-controlled series of cases has yet been presented. In these chronic diseases, however, where the organism is suitable, this method may be used preoperatively to reduce the hazards of thoracic operations.

2. The other types of diseases which can be treated are those in which there is some alteration in the bronchial lumen, either due to excess secretion, mucosal swelling or muscular con-Here there are many diseases, and striction. many medications may be used, but the most popular are 1/100 epinephrine, or 1 to 2% neosynephrine, which may be used in 0.5 to 1 c.c. amounts every 3 hours. If infection is superadded to the bronchial constricting process, the antibiotics, such as penicillin, may be added to the bronchial-relaxing, mucosal-shrinking mix-Diseases which may be treated in this manner are chronic bronchitis, bronchiectasis, lung abscess, emphysema, atelectasis and asthma.

In connection with atelectasis, I would like to amend the suggestion I put forward two years, ago for the rational medical treatment of post-operative atelectasis.¹ In outlining the procedures for treatment at that time, I used the subcutaneous injection of ephedrine to relax the bronehial tree. I would like to state now that I believe a better effect could be obtained by using aerosol solution of epinephrine or ephedrine instead of the injection method. The rest of the treatment would remain unchanged.

Bronehitis, bronchiectasis and lung abscess are noteworthy because in these diseases there is often a elinically unrecognized swelling of the mucosa or heaping-up of the membrane by granulation tissue which tends to interfere with drainage. Shrinking the mucosa may help establish adequate drainage and aid materially in the treatment of the patient. The following is a case in point.

CASE 1

The patient was a 39-year old man who was admitted to the Royal Victoria Hospital on June 16, 1946, complaining of chest pains, fever and a cough of ten days' duration. On admission there were clinical and radiological signs of disease in the right lower lobe suggestive of a pneumonic process in this lobe, with possibly a small interlobar effusion. His sputum showed pneumococci and hæmophilus influenzæ. He was then placed on penicillin therapy, 20,000 units intramuscularly every 3 hours. This therapy was continued for ten days without any effect on the fever. A course of sulfadiazine was started on July 3. This had some apparent effect at first, but later the condition in the lung which had shown some clearing by x-ray, began to spread again.

Previous attempts at thoracentesis had been unsuccessful, but on July 9, some thick pus was obtained through an aspiration needle, and was replaced by air. Tomographic examinations were then done which showed the air to be in the lung parenchyma, and it was now evident that we were dealing with a lung abscess. One bronchoscopic examination was done, and so was a bronchogram to rule out the possibility of a bronchogenic carcinoma with an abscess behind it. On the assumption that dilating the bronchial tree and shrinking down any granulation tissue which might be present at the mouth of the abscess would allow of good drainage, aerosol therapy was started with 0.05 c.c. of 1/100 epinephrine, and 1 c.c. of 1% neosynephrine. As the sputum had contained pneumococci, penicillin, 20,000 units every 3 hours, was also given in this aerosol. For some days there was considerable sputum, but this decreased rapidly, and after a few days he was well enough to go home without further therapy. He has remained well since that time.

This case illustrates both the antibacterial value of penicillin aerosol therapy and its value in keeping the bronchial tree patent and allowing drainage of acute purulent infections which might otherwise have to be drained surgically or bronchoscopically.

Aside from acute infections, such as pneumonia, where penicillin aerosol can be used, it is perhaps in asthma that this type of therapy can be employed most advantageously. It is of great value in status asthmaticus where it may be sufficient therapy in itself, or may be a valuable adjunct to other therapy. The following eases illustrate its value.

CASE 2

This was a 20-year old woman who began to have severe attacks of asthma about four years ago. These usually began about August 15, and lasted until the first frost. They had always been relieved by one or two injections of adrenalin. This year she had had descusitization treatment for ragweed.

Two days prior to admission on August 23, 1946, she had a very severe attack of asthma. This continued for 48 hours, and was not relieved by numerons injections of adrenalin and then of aminophyllin. On admission she was placed on oxygen plus aerosol treat-

ments of ½ e.c. 1/100 epinephrine every 4 hours. Within 12 hours she was very much better and was able to breathe quietly and easily without any therapy. Subsequent allergic tests showed marked sensitivity to ragweed and to cat and dog dander and a moderate sensitivity to stock dust.

This case is relatively simple, and indicates the rapid results which may be obtained in acute attacks after injection therapy has failed.

CASE 3

This patient was, a 34-year old married woman who had attacks of paroxysmal shortness of breath and wheezing for 2 years. Due to some rather marked marital difficulties which had arisen about the same time, her physician considered her asthma to be psychogenic. She had also suffered from thyrotoxicosis, and had a thyroidectomy at the Montreal General Hospital in 1930. In January, 1946 she was admitted to the Reddy Memorial Hospital where she stayed for some weeks under treatment for asthma. Two weeks before admission to the Royal Victoria Hospital she became very short of breath, wheezy, and had thick, tenacious expectoration. She was treated by her physician with all the usual remedies, but to no avail. In the Royal Victoria Hospital, because of her fever, she received penicillin intramuscularly, and also received barbiturates, hypodermic injections of adrenalin, and pyribenzamine for her asthma. These measures gave slight relief only. She was found to be suffering from sinusitis, and a culture showed a growth of Veisseria catarrhalis.

Penicillin intramuscularly had not affected the fever. On May 25, penicillin aerosol therapy, 25,000 units every 2 hours, was started, and her temperature immediately fell to normal. Her subsequent stay in hospital was uneventful, and she was discharged to continue on autogenous vaccine therapy which apparently helped her, as she has been free of any major attack since.

This case illustrates the good effects which may be experienced in bacterial asthma when the organism can be attacked directly on the mucosa rather than indirectly through the blood stream.

CASE 4

This patient was a 52-year old man who had been incapacitated by asthma since 1939. Two months prior to admission to the Royal Victoria Hospital, he had suffered an attack of cardiac decompensation which had improved with the use of digitalis. Two weeks prior to admission, his asthma became much more severe, and did not respond to the use of aminophyllin by mouth, and of large doses of epinephrine by hypodermic injection, frequently repeated. He was admitted on September 15, 1946, and placed in an oxygen tent and on aerosol therapy every 3 hours, using ½ e.c. 1/100 epinephrine and 1 c.c. 1% neosynephrine. This improved him somewhat but the relief was not dramatic until aminophyllin was added to his regimen intravenously, and later by rectal suppository. He was also given Mistura Stramonii by month. No pathogenic organisms were found in his sputum, so penicillin was not given. His symptoms cleared, and he was discharged to his home 10 days after admission, where a course of histamine desensitization was given. His physician tells us that he has remained well since that time as far as his asthma is concerned.

This ease is rather more complicated than the others, and illustrates the usefulness of aerosol therapy as an adjunct to other therapy. It

demonstrates, however, that other measures are often necessary as well; and that one single method may not work alone where a combination of measures may be helpful..

These cases are illustrative of the usefulness of aerosol therapy in many types of pulmonary Sometimes the aerosol alone is sufficient; sometimes it must be combined with other measures. It is worth trying much more frequently than it is used at present.

This type of therapy is really still in its infancy, and only time will tell how many different medications can be used successfully in this way, and how many respiratory diseases can be helped by such use. At present it seems a helpful method which can be used either in the home or the hospital.

- ARONOVITCH, M.: Canad. M. A. J., 53: 222, 1945.
 BARACH, A. A.: Inhalation. Therapy, Lippincott, 1944.
 BRYSON, V., SANSOME, E. AND LASKIN, S.: Science, 100: 33, 1944.
 MORSE, F. W.: J. Am. M. Ass., 132: 272, 1946.
 MUTCH, N. AND REWELL, R. E.: The Lancet, 1: 650, 1945.
- SEN, A. M.: Proc. Staff Meet. Mayo Clinic, 20: 184, 1945. 6. OLSEN

THE CHALLENGE OF THE YOUNG CHILD*

D. V. Hutton, O.B.E., M.D.

Ottawa, Ont.

 ackprime ANADA has a real challenge in the realm of infant mortality. Our statistical figures are not enviable as compared with those of other great nations. We are not the worst, but we are a long way from being the best.

True it is, we have made progress, and the 1945 figures for infant mortality show a substantial reduction from 55 per thousand in 1944 to 51 per thousand in 1945. This is the lowest figure for infant mortality in our national history. It represents a lowering of almost S%, and indicates a saving of some 1,120 infant lives in one year. But comparison with the 1944 figures of other countries (Table I) should stimulate our national efforts in reducing our infant mortality.

Let us review our Canadian statistics for a moment. In 1945, 511 of every thousand babies born alive died during the first year of life, and more than half (8,219 out of 14,741) of these infants died during the first month of life, that is, during the "neonatal" period.

TABLE I.

, INFANT MORTALITY RATES, 1944
Sweden 30)
New Zealand 30
Australia 31
United States 40
Switzerland 42
England and Wales 46
Deumark
Union of South Africa (whites) 48 (1943)
Canada 55
Seotland
Northern Ireland 67
Eire 79

When we add the infant deaths and the still-. births-14,741 and 6,588—we have a total of 21,329 babies lost in one year.

INFANT NEONATAL 2000 MATERNAL MORTALITY RATES PER 1000 LIVE BIRTHS

CANADA, 1926-1945 1945 Preliminary figures :00 : 39 60 PARANT ã0 50 NEONATA 4: 23 20 1935 1910 Chart 1

The ehief contributing factor in infant mortality is prematurity. Last year 3,256 babies died because of premature birth. means that one of every three babies (39%) who died in the first month of life died because of being born prematurely.

The infant mortality rate of 51 per thousand live births is computed2 by Provinces. follows:

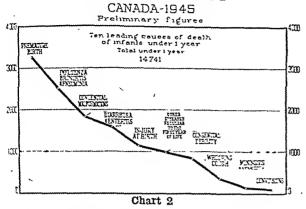
TABLE II. INFANT MORTALITY RATES, 1945

_ (Pienminary ngures)	
CANADA	
Ontario	40.6
British Columbia	41.S
Saskatchewan	42.6
Alberta	42.9
Prince Edward Island	44.4
Manitoba	47.7
Nova Scotia	52.9
Quebec.	61.9
New Brunswick	67.9

What are the factors responsible for such a wasting of infant lives? For the sake of clarity

^{*} Division of Child and Maternal Health, Department of National Health and Welfare.

INFANT MORTALITY



it is convenient to divide the period of infancy into three age groups, although it must be realized that there is no hard and fast margin separating these groups. Group 1.—The newborn or neonatal period. Group 2.—The first three months of life. Group 3.—From the fourth to the thirtieth month.

Since other influences are brought to bear on the future of the infant it is necessary to prefix two additional groups: first, the prenatal or intra-uterine and, second, the birth or confinement period.

These periods will be considered in their natural sequence.

PRENATAL FACTORS

In spite of all our pædiatrie and obstetrie knowledge, prospeetive mothers, and even doctors and public health workers, fail to appreciate that the infant actually is developing for that nine-month period before it is cuddled in the mother's arms.

Professor Leonard Parsons of the University of Birmingham, England, in his Blair Bell Lecture, places a terrific onus of responsibility on the shoulders of the obstetrician in the prevention of prematurity and stillbirths, malformations, monsters, certain types of idiots, and the conditions arising from incompatibilities dependent on the Rh factor. He draws attention also to the fact that certain virus, or it may be toxin-producing diseases, specifically German measles, during the first four months of pregnancy, may be responsible for cataract, deafness and certain malformations. Beck³ similarly, in a recent report, stresses the necessity of early and continued prenatal care, plus the special selection of an obstetrician. In his study, Beck states that 60% of the neonatal deaths at his hospital were the responsibility of the obstetrician.

BIRTH

With proper prenatal care and good obstetrical conditions, the hazards which envelop this particular phase of life should be minimized or completely avoided. The indiscriminate administration of certain forms of twilight sleep, or anæsthesia, too often results in a reasonably comfortable confinement but a partially asphyxiated or dead baby. Hospital obstetrics affords greater facilities, offers less hazards when emergencies arise, and gives assurance of better supervision to both mother and infant.

NEONATAL PERIOD

Until the normal physiology and behaviourisms of the neonate are thoroughly understood, we cannot hope to diminish the shocking loss of life in this period. During the past four years, Dr. C. A. Aldrich, Director of the Roehester Child Health Project, under the sponsorship of the Mayo Foundation, has instituted an intensive study of the fundamental problems relative to the neonate. It is only reasonable that the infant, leaving the shelter of the mother's womb, should experience difficulty in adjusting itself to its new environment. Aldrich initiated his studies in the newborn infant by a detailed survey of crying.4 as a result of which, and as recorded by an audiometer, the amount of crying amongst newborns in St. Mary's Hospital, Rochester, has been reduced by 55%. On first thought such a survey might appear puerile but, in studying the factors which provoked the erving, and subsequent reorganizing the newborn's environment and daily habits, Aldrich and his coworkers have gained some understanding of newborn behaviourism.

Pædiatries is gradually being weaned from the dogmatism of the Teutonie influences of All of the leading the past two decades. pædiatricians of two decades ago were either German or Austrian, and their severe and hardand-fast dieta were quite naturally carried over to the English-speaking world. Thanks to the work of such outstanding American child specialists as Aldrich and Arnold Gesell, the pendulum of pædiatric thought on this continent is swinging back, and once again the infant is being considered as a human being. As with the adult, security and contentment, affection and love, greatly augment the infant's capacity to withstand the daily stresses and strains of life.

Breast milk is the food of choice for the human offspring. The modern trend away from breast feeding is most lamentable, and an energetic program of re-education of mothers, prospective mothers, and even doctors unfortunately, is urgently needed throughout Canada.

The multiple advantages of breast milk have been eulogized throughout medical literature, and consequently do not merit further elaboration here. On a recent tour throughout Eastern Canada, it was truly appalling to find, in one eommunity after another, that less than 2% of mothers nursed their babies. In these same eommunities the infant mortality rate soared as high as 133 per thousand live births. This figure is most significant when compared with the rate of 30 per thousand in New Zealand where 90% of mothers nurse their babies.

Undoubtedly there are instances when a woman cannot nurse her baby, but these are few and far between. When artificial feeding is necessary, it should always be given under competent medical supervision. This eusures a safe formula, as well as one that is properly balanced as to fats, earbohydrates and proteins. As to the time interval, Aldrieh has shown that it is more desirable to allow the infant to establish its own feeding routine. During the newborn period it has been proved that babics who are fed when they are hungry are much happier than babics who are put to nurse when they are not hungry, and are denied feeding when they demand it by crying. However, once having established the time intervalwhether it be a two-hour, three-hour, or fourhour interval—this routine is adhered to.

One of the greatest perils of the neonatal period is infectious diarrhea. It is the result of contaminated food, poor technique and uncleanliness on the part of the mother, and ignorance, whereby people with any infection are allowed to approach or handle the baby. Simple precautions will, in the main, obliterate this major cause of infantile deaths. In 1945, 1,586 infants under one year of age died of diarrhea.

Suitable clothing and a proper nursery are essentials to safeguard the infant, particularly the neonate, from the seasonal hazards.

Once we thoroughly understand the physiological peculiarities and behaviour characteristies of the neonate, we will have broken the scal of ignorance. In a recent article Dr. Arnold

Gesell⁶ of Yale University makes this statement with reference to clothing:

"Birth deprives the fetal infant of the snug investment of the uterus. It is idle to duplicate intra-uterine conditions, but it is not impossible to restore some of their advantages. The modern neonate does not take kindly to nudity, even in a humidor. I believe that he craves the tactile and thermal snugness of clothing. This suggests that there are virtues in close-fitting, long-sleeved piqué jackets, in cotton-batting bootees wrapped about the feet."

Moreover, with reference to handling, Gesell states:

"The fetal infant is not as fragile as he is supposed to be. He needs skilful handling rather than no handling at all. If he were still in the uterus he would have the benefit of jolting, jarring, impacts, changes in position, and travel with the activities and the goings and comings of the mother."

Further, Gesell, in a recent-study of preterm infants, interpreted the psychology of these prentatures in terms of their muscle tonus. Tonus is a condition of muscle tension which is mediated by the two opposing types of nerve impulses. The weakling has low muscle tonus, the dying is losing tonus, and the dead has no tonus. On the other hand, the normal healthy infant has good elasticity or tonus to his muscle All measures, therefore, which safeguard and foster the function of tonus are of eritical importance in the care of the premature infant and, to a slightly lesser degree, in the handling and care of the full-term infant. Handling, therefore, should be brief, because tonus is readily lowered; but if the infant is handled with dexterity and despatch it is likely to acquire a quality of hardiness instead of the softness or poor tone which necessarily comes with unmitigated hospitalization.

There is a decided trend of pædiatric endeavour into the field of functional growth and development, mental hygiene or behaviour problems. All pædiatricians with experience in active practice know that many, indeed the majority, of the questions asked by parents are not with reference to tonsils or knock knees, measles, etc., but are about behaviour and the training of children. Practically all the behaviour difficulties in childhood? have their conflicts arising out of differences between the nature of the child and the rules set up in his environment to govern his behaviour.

Aldrich in his presidential address to the American Pædiatric Society, warned that in many instances trouble started because those who care for children have not learned to expect

them to act their age. It seems almost axiomatie that we should not expect behaviour for which a ehild's growth and development have not yet prepared him. A thorough knowledge of developmental progress is, therefore, necessary for a pædiatrieian as the faetual background on which to base his advice to parents about such important matters as basic habit formation, infantile crying, and even the problems of adoleseence. Aldrieh asks how a physician can advise as to habits of urinary control unless he understands the growth which applies to such eontrol. How can he interpret the erving of the newborn infant unless he understands the stage of mental and emotional growth of such babies? And where can he obtain such information in his medical curriculum?

Too often difficulties arise because adults do not allow children to live up to their capabilities as laid down by their growth. particularly evident in the second year of life when an infant strives with all his physical, mental and emotional power to gain functional control over capabilities that have developed during his first year of life. Ultimately the infant graduates to the "do it myself" phase, and, as though to confound and thoroughly baffle his growth and development, the parent repeatedly interjects with the crescendo No! No! No! Many of these children are labelled as naughty because parents do not allow them to do things which are inherently dictated to -them by their growth eapabilities.

THE FIRST THREE MONTHS OF LIFE

This is a period of aeclimation; the infant is learning to live in a new world. It is paramount, therefore, that these experiences should be punctuated by love and affection, understanding and a basic knowledge of physical and mental growth. Through careful attention to the normal functions of life—feeding, elimination and rest, representing the major experiences in early infancy—behaviour patterns are developed which have permanent influences on all future life. The parent sets the stage; the infant forms the behaviour patterns, whether they be good or bad.

FROM THE FOURTH TO THE THIRTIETH MONTH

By the fourth month the infant's horizon has broadened. New patterns are developed daily. Development may be accelerated or it may be retarded. Each infant develops with an indi-

vidualism which, in many eases, is the primary clue of impending danger.

All hazards are not behaviouristie, however. Disease is an ever-present threat. Protection from the preventable group—diphtheria, whooping cough, searlet fever, smallpox and tetanusshould be given. Whooping cough kills more Canadian infants than diphtheria, scarlet fever and measles combined. The toll of life is highest in babies under one year of age. It takes four months for complete immunity to develop after the final injection; hence it is of prime importance not to delay these injections beyond the sixth month. Many physicians and public health authorities are now administering a eombined vaccine for diphtheria, pertussis and tetanus. To protect the infant from the commoner infections, colds, sore throat, dysentery, influenza, pueumonia, etc., insist on adults and older children, who have any infection, staying away from the baby. If the mother has a respiratory infection, she should wear a gauze mask whenever handling the baby, plus scrupulous eleanliness of her hands.

Routine supervision by the family doetor, pædiatrician or public health clinic is one of the greatest safeguards against grief to the baby. Maladies are thereby prevented or recognized early, and are more readily treated.

As mentioned, breast milk is Nature's answer to many of our gravest infantile problems. Solid foods^s are added to the infant diet, not solely as nutritional essentials, but also to teach the infant the acceptance of foods which differ in taste, consistency and colour, thereby minimizing later feeding habit problems.

Additional food factors—vitamins and minerals—are necessary to prevent rickets, scurvy, eye conditions, anæmia, etc. Gerstenberger⁹ of Cleveland, after four years of intensive study with vitamin D_3 , has demonstrated conclusively that a single intramuscular injection of 6,250 units of D_3 in oil will prevent or cure rickets for a year. He recommends that this injection be given on the eighth day of life, or just before the infant leaves the hospital. Such a public health procedure would definitely prevent infantile rickets across the nation. The cost would be negligible, and the benefits manifold.

SUMMARY

1. The necessity for pre-uatal eare is emphasized.

- 2. Confinement should be under the best conditions possible.
- 3. Doctors, nurses and parents must gain a greater understanding of the neonatal period (first month of life) before the terrific toll of newborn infant lives is to show an appreciable reduction.
- 4. Common sense, augmented by competent professional advice, is the beacon light by which to guide the baby safely through the period of infancy.
- 5. Breast feeding, proper diet, protective inoculations and the avoidance of direct contact of the infant with persons who are infected, are basic requisites in offering the infant his greatest chance of life.

REFERENCES

- Preliminary Report on Births, Deaths and Marriages, 1944 and 1945, Dominion Bureau of Statistics.
 PARSONS, L. G.: J. Obst. d Gyn. Brit. Emp., 53: 1, 1946.

- 1946.
 BECK, A. C.: Am. J. Obst. & Gyn., 151: 173, 1946.
 -ALDRICH, C. A. et al.: J. Pxdiat., 27: 428, 1945.
 Idem: J. Pxdiat., 28: 665, 1946.
 GESELL, A.: J. Pxdiat., 29: 2, 1946.
 ALDRICH, C. A.: Am. J. Dis. Child., 72: 1, 1946.
 Idem: Cultivating the Child's Appetite, 1927.
 GERSTENBERGER, H. J.: Bull. Acad. Med., Cleveland,
 May, 1946.

710 Jackson Bldg.

FALLACIES AND CONTROL OF RESPIRATORY INFECTIONS WITH SPECIAL EMPHASIS ON INFLUENZA

Francis S. Brien, M.B.

University of Western Ontario,

London, Ont.

PART I.

IN the spread of any infectious disease there must be: (1) A source; in the case of the respiratory group this is an individual with clinical or subclinical infection. (2) A mode of spread: from person to person—it would appear that droplet and air borne routes are the most important. (3) An individual who is susceptible to the transferred micro-organisms.

Control of such diseases depends on: (1) Isolation and/or treatment of the source, which is obviously difficult in mild ambulant cases of respiratory infection. (2) Control of the mode of spread; certain aspects of which will be discussed in some detail, and about which there yet remains much to be learned. (3) Measures that can be taken to increase the immunity of exposed susceptibles. This is especially important in influenza and will be considered in the latter part of the paper.

The old theory of dissemination of respiratory diseases was the "contact" theory whereby infection was transferred from person to person, by direct contact or droplets. Flugge showed that bacteria in droplets showered by coughing spread only a short distance from their point of origin. This led to the proper spacing of beds in hospitals and consequent reduction of cross infection. However, it did not prevent the spread of measles and chickenpox.

More recently the indirect or "air-borne" theory has been brought to the fore by workers in England. France and the United States. It emphasizes that the greatest spread of respiratory infections is due to small dried droplets which float in the air for a relatively long period of time and can cover relatively long distances, or to the resuspension of dried droplets after they have settled to surfaces such as floors, clothing, bed clothes, etc.

In an excellent critical review Buckbinder discusses the evidence that has been accumulated to support the air-borne hypothesis of spread. Wells has shown that when bacteria of a type that cause respiratory infection are sprayed into the air they can be recovered many hours afterwards. From studies on the air of schools, theatres and a snbway in New-York he found that their numbers varied directly with conditions of occupancy and ventilation. The numbers of alpha hæmolytic streptococci recovered can be used as an index of contamination of the air. It has been determined that streptococci artificially sneezed into the air settled out geometrically on agar plates at a rate of about 20% per hour, leaving a residuum of about 0.5% of the initial number at the end of 24 hours. Further, after settling occurred it was found that the organisms died at geometric rates and could be recovered from the floor of a dark room for extended periods. appreciable numbers remaining alive for several weeks. It was also learned that certain of their pathogenic properties were but slightly impaired during this time.

In another investigation the effect of sunlight and daylight on streptococci and pneumococci was studied. It has long been known that the visible spectrum (especially the blue region) exerts a bactericidal effect. However, most research has been in the direction of the more potent ultraviolet region of the invisible spectrum.

Experimentally, it was found that 50% of the organisms of a short-chained strain of alpha hemolytic streptococcus, and certain strains (I, II, and III) of pneumococci were killed in three-quarters of an hour when exposed to sunlight and daylight which had passed through a glass window and the glass covers of Petri dishes. In the ease of group A beta hæmolytic streptococci the lethal period was somewhat longer, due, in part, to the greater length of the chains. Diffuse daylight from blue skies exerted a maximal effect per foot candle, whereas light from grey skies was minimal. The lethal qualities of overcast skies were not insignificant. Direct sunlight through glass was some 10 times as potent as diffuse daylight, 50% of short-chained streptococci being killed in 5 minutes. It was also found that the common tubular type of fluorescent lamp exerts a lethal effect only slightly less potent than that of daylight.

As a result of these studies, it would appear obvious that a maximum of window space is desirable in buildings of the future, whether for industry or otherwise.

The mode of spread of virus infections of the respiratory tract is much more difficult to investigate. However, it has been found that influenza virus can be recovered 30 but not 60 minutes after it has been sprayed into the air. In the case of vaccinia virus the recovery period extended up to at least 8 hours. The virus settles out more quickly than bacteria. This finding may indicate a more rapid death rate for the virus.

Further support for the air-borne theory has come from the investigation of hospital infections, especially those occurring in contagious disease or isolation hospitals. Direct contact may play a part. particularly with ambulant patients. However, in searlet fever wards. streptococci can be recovered from the air in relatively large numbers, and they are not eonfined to the immediate proximity of patients suffering from the disease. Moreover, the degree of infection of the air varies considerably during the 24 hours, being absent or negligible at night, and greatest when the activities of the ward staff are at their height, and air movements so induced are most marked. The possibility of the indirect spread of infection by stirred-up dust should also be considered. There is relatively little direct evidence as yet for the air-borne spread of pneumococci infections. However, the pneumococci can be recovered from the environment of patients without great difficulty. Air-borne infection has also been demonstrated in eonnection with diphtheria, and in this instance the ease with which the causative organism could be demonstrated in floor sweepings was truly remarkable.

A third series of data which lends support to the air-borne hypothesis has come from attempts to rid the environment of organisms spread by this route. Two main methods have been used: (1) ultraviolet light; (2) chemical sprays, the so-called aerosols.

Wells has pioneered in the use of ultraviolet Lamps of this type have been used widely in hospitals, schools, nursing homes. etc., and have proved to be highly bactericidal. Wells feels that by their use germs can be removed from the air much more quickly than by any type of mechanical ventilation. In addition, the method requires little attention. It has, however, deleterious effects on the eyes and skin, which can be overcome by shielding the body (but which may be difficult of accomplishment) or by shielding the lamp (which may reduce its efficiency). Moreover, if the lamps are attached to the ceiling the rays will be least effective against bacteria on the floor. A third difficulty, which applies to many industries, is that as people move about they stir up dust which interferes with the action of the light. At the moment, the use of ultraviolet light as a means of sterilizing air would appear to be of rather limited application, and best suited to operating rooms and contagious disease units in hospitals.

Lister introduced the spraying of phenol into the air of operating rooms many years ago. but after the advent of aseptic techniques the practice was abandoned. With the recent work on the air-borne spread of baeteria, interest in the spraying of germicidal agents into the air has been revived. Moreover, their application is being considered over a much wider field. A variety of substances has been tested (sodium hypoehlorite, resorcinol, hexylresorcinol-the latter two dissolved in a vehicle such as propylene glycol, and the higher alcohols alone-propylene glycol, ethylene glycol, and trimethylene glycol). Such a substance should not be noxious to man, nor injurious to furnishings or equipment in the room being sprayed, nor of prohibitive cost. It has also been found that germicidal mists are capable of penetrating cloth and acting on bacteria beneath, and that such mists are relatively effective in killing bacteria on smooth horizontal surfaces, but less so on vertical ones. Diethylene glycol is bactericidal in a dilution of 1 in 40 million and exerts no toxicity on man. However, its value is limited by the fact that an even temperature and humidity must be maintained for its continued efficient action. Triethylene glycol is still more effective and can be shown experimentally to be very effective in reducing the bacterial count in air. Temperature and humidity in themselves may also exert a marked sterilizing effect.

The action of the glycols is greatly reduced by dust and their usefulness demands adequate measures for dust control. The British used aerosols in some of the bomb shelters in London, combined with the oiling of floors and blankets. Bedding of this character can be very heavily contaminated with micro-organisms and add very materially to the bacteria present in air.

The ordinary face mask, used in hospitals, eonsisting of a triple layer of gauze, is of relatively little value. If the wearer sneezes it breaks up the expelled partieles into such a size that they may readily float about the air of a room. An efficient mask must be made from some material that fits the face elosely and contains a filler that filters out the bacteria. Layers of gauze and Cauton flannel will hold back particles of minute size and capable of floating in the air. The use of such masks is restricted to doetors and nurses with a mild respiratory infection; patients with respiratory diseases at certain times; those concerned in aseptic procedures. In an ordinary industrial environment the mask would appear to have no practical application.

An attempt to destroy organisms at their immediate source, in the host, would appear to be a very rational procedure. However, it is technically difficult of accomplishment. The use of snuffs made of sulfathiazole, penicillin, or proflavine, with a base of lycopodium spores or magnesium carbonate has been found to temporarily reduce the number of organisms recoverable from the noses of staphylococcus carriers. Likewise, it has been suggested that sprays of proflavine and acriflavine cut down the incidence of postoperative scarlet fever in a nose and throat department. The prophy-

lactic use of sulfadiazine during an epidemic of upper respiratory streptococcal infections does eut down the over-all earrier rate, which in turn determines the number of clinical eases. However, it has two dangers: (1) possible toxic effects of drugs; (2) there is good evidence that sulfonamide resistant strains can be developed by this procedure. At the moment, the usefulness of this procedure would appear to be limited to highly specialized circumstances, such as the control of a streptococcal epidemic in children suffering from rheumatic heart disease, or under certain special military circumstances.

Mechanical ventilation and filtration of air play a part of relatively little significance in the control of the spread of air borne infections. At the present time, under crowded conditions, we are breathing each other's respiratory flora in the same manner as we once drank each other's intestinal flora before modern methods of water purification were introduced.

PART II.

Now let us consider influenza. This condition is a clinical and epidemiological syndrome which appears in epidemic waves of varying proportions. It is quite probable that at the present time there are included under the designation "influenza" several different diseases so similar elinically as to be indistinguishable. Attempts have been made to differentiate them upon epidemiological, elinical, and laboratory grounds. Epidemiologically, the terms pandemie, epidemie, and sporadie influenza are in common use. Clinically, the common cold, grippe, influenza-like, are terms indicative of an attempt at differential diagnosis. Leueopenia or the finding of Pfeiffer's bacillus have been used in a similar manner. However, the latter has long been known to be present in unrelated conditions, and has been found in up to 40% of normals.

Influenza is characterized by a rapid dissemination, high morbidity, sudden onset with fever, chills, pharyngitis, cough, myalgias, leucopenia, and inconstant bronehitis or pneumonitis. The mortality is usually low, the immediate recovery prompt after a course of 3 or 4 days, but asthenia far out of proportion to the apparent severity of the illness may persist for some time.

When the clinician recalls the pandemic of 1918, he thinks of a fulminating fatal diseasc.

Since then he looks upon it as "la grippe", a condition lying between the common cold on the one hand and the pandemic form on the other, and subject to great variations from time to time. The evidence at the moment suggests that the disease is always present.

In 1933, Smith, Andrewes, and Laidlaw in England, localized a virus as the causative agent of influenza in throat washings of patients suffering from the disease. This was confirmed by Francis in 1934. There is a close relationship between the virus of swine influenza and that of the human variety, though the two are immunologically distinct. which are immune to either exhibit active imnunity against the other. Dochez and Long have transmitted the common cold to the higher apes and to human volunteers using baeteria-free filtrates of nasal washings. Further, with material from clinical cases of influenza, cultures have been made which produce symptoms of the common cold in humans. The viruses have not been pathogenic for the smaller laboratory animals. There are differences in the cultural characteristics of the causative agents of the common cold and influenza. Both are important in the incidence of the more severe disease, lobar pneumonia.

In 1936 and 1940, epidemics of influenza occurred which were due to a virus antigenically different from the usual variety, and Francis isolated it in 1940. It has been accepted that the established form of epidemic influenza be called influenza A, and the new type designated as influenza B. Within each type there are wide strain variations. They are etiologically distinct although clinically similar diseases. Horsfall and others in 1941 reported studies in which cases of influenza in one epidemic, even in a single institution, were due to infection, in some instances by influenza A virus, in others by influenza B virus, and in still others, no evidence of infection by either of these viruses was demonstrable. As to the etiology of the fulminating pandemic form of influenza there is still considerable speculation. Some believe that a mutation in terms of pathogenicity takes place.

In 1943 it was shown that there were many subclinical cases of influenza B, by rises in the scrological titre, and these were capable of spreading the disease. Epidemies of influenza A appear to have a cycle of 2 to 3 years, and those due to influenza B a cycle of 4 to 6 years.

It used to be held that in inter-epidemic periods the virus disappeared. However, more recent studies have shown that there are innumerable cases of both types of influenza all the time, and thus the viruses are in continuous circula-Experimental and epidemiological evidence suggests that the air-borne route is the mode of spread (explosive outbreak; cannot be transmitted experimentally other than by the respiratory passages). The incubation period is 24 to 72 hours. This may be shortened to 12 to 18 hours, experimentally, if a large dosage of virus be employed. The duration of the illness varies from a few hours to several days. If it lasts longer than 4 or 5 days, one should suspect some complication. The duration of infectivity is from shortly before the onset of symptoms to 5 to 7 days thereafter. The virus can be recovered most successfully during the acute phases of the disease. The number of carriers is very difficult to determine, but there is no doubt that persons can be free of symptoms and yet harbour the virus in their throats and so contribute to the spread of the disease.

The laboratory diagnosis of influenza now rests on a firm basis. The virus can be recovered from the throat washings. This was first done by inoculating ferrets. Later, mice were employed (intranasal inoculation) the present time the chick embryo is used. The suspected washings are injected into the allantoic cavity of 11 day old embryonated eggs, and further incubation carried out. At the end of 12 to 24 hours, if virus is present it will cause an agglutination of the blood cells of the embryo. The exact type can be identified by further investigation in which it is compared with known sera. However, at the present time such virus investigation is beyond the scope of the average hospital laboratory.

Studies on the serum of patients in whom virus has been isolated in the throat washings have shown rises in the antibody content (neutralization test in mice and by complement-fixation). It was found that the titre of convalescent serum was usually about ten times as high as that of acute serum. Moreover, in cases clinically similar to influenza, but in which no virus was recovered, there was no antibody response in the serum. Thus serological antibody determinations can be of diagnostic significance. The titres rise 7 to 10 days after the onset of the disease and then decline

slowly. The rate at which this occurs depends somewhat on the size of the community, being more rapid in the small centres of population and much slower in large cities (where the individual is more frequently exposed to reinfection).

From the standpoint of the control of influenza the use of aerosols and ultraviolet light is obviously of limited value, being possible only where the physical situation is such as to permit their use. With an explosive outbreak of the disease they would be hopelessly inadequate. Therefore, the only means likely to be successful in the event of an epidemic, would appear to be the use of measures designed to immunize the individual.

Virus inactivated by formalin or ultraviolet light has been shown to produce some degree of immunity in animals. The first trials on humans were rather inconclusive, due to inadequate dosage, etc. However, the investigative program of the Commission on Influenza, of the Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the U.S. Army has shown a decided difference in the incidence of influenza in vaccinated and non-vaceinated groups. Subcutaneous vaccination with a concentrated formalinized preparation of influenza viruses, types A and B. has been used. This is important because the duration of immunity is influenced by the potency and dosage administered.

In the portion of the study carried out at the University of Michigan in 1943, there was an incidence of typical influenza requiring hospitalization (temperature 100° F. or more) of 8.58% in the controls (who numbered 875) and of 2.27% among the vaccinated (who numbered 878); 79% of the cases developed in the control group. Mild influenza generally unaccompanied by fever and diagnosed in patients seen in the dispensary but not admitted to hospital, occurred in 8.04% of the control and 4.78% of the vaccinated men. No significant difference between the control and vaccinated subjects was observed in the incidence of cases diagnosed as local respiratory infection or common cold.

Antibody studies on sera obtained from a sampling of the control group before and after the epidemic in the autumn of 1943 revealed serological evidence of influenza A infection in 41%. There was no record of attendance at

siek call in 16%, suggesting the extent to which subclinical infections occurred.

Again in the early winter of 1945 there was an epidemie of influenza B in Michigan, and it was possible to compare the incidence of the disease in an army unit of 600 men who had been vaccinated against influenza with another unit of 1,100 who had not. The incidence among the vaccinated was 1.15%, and in the unvaccinated 9.91%.

The onset of protection following injection of the vaccine would appear to be in one week, though it may take several weeks to reach its maximum. Its duration is not too well established, but certainly it is measured in months. In two Michigan state hospitals nearly 4,000 patients were inoculated with a formalinized concentrated influenza virus vaccine, types A and B, and a like number were given an injection of sterile salt solution, during the winter of 1942-1943. The anticipated outbreak of influenza did not appear until the next winter of 1943-1944. Very definite evidence of protection from the vaccine given a year previously was obtained.

During the past three years members of the Commission on Influenza of the Army Epidemiological Board have earried out serological sampling of common respiratory infections in various service commands in the United States. In this manner the epidemiological patterns of influenza A and B were studied. In the ease of influenza A in 1943 and influenza B in 1945 the presence of the virus was detected well in advance of epidemic outbreaks of the disease. It is to be hoped that such observations can be continued. Indeed, the possibility of establishing a central virus laboratory in our own province is worthy of serious consideration. Such an institution could recommend the optimum time for vaccination. Waiting until the onsetof an epidemie may be too late. It has been suggested recently that immunization may prove to be of little value against the fulminating pandemie form of influenza. Time alone will answer this question.

If advice cannot be obtained from a virus laboratory vaccination during the autumn months would appear logical, with revaccination should an epidemic occur three months or more following the initial inoculation.

The total prophylactic adult dose of influenza virus vaccine (types A and B) is 1 c.c. administered subcutaneously in one injection. In the

case of children under 12 years of age, it is suggested that they be given two injections of 0.5 c.c. one week apart. Caution should be observed in giving influenza virus vaccine to persons with a history of allergy, and more especially if they are sensitive to chicken protein, egg or dander.

Local and systemic reactions following the administration of the vaccine have been seen occasionally. Local reactions consist of transient reduess and tenderness at the site of injection. The systemic variety consists of transient malaise. headache and chilliness. Influenza-like symptoms with an elevation in temperature may occur. Such symptoms usually subside within twenty-four to forty-eight hours.

BIBLIOGRAPHY

- BIBLIOGRAPHY

 1. BUCHBINDER, L.: The transmission of certain infections of respiratory origin, J. Am. M. Ass., 118: 718, 1942.

 2. Francis, T. Jr.: Epidemiological studies in influenza, Am. J. Pub. Health, 27: 211, 1937.

 3. Idem: New type of virus from epidemic influenza, Science, 92: 405, 1940.

 4. LENNETTE, E. H. et al.: The diverse etiology of epidemic influenza, Pub. Health Rep., 56: 1777, 1941.

 5. Francis, T. Jr. et al.: Etiological and serological studies in epidemic influenza, Am. J. Pub. Health, 27: 1141, 1937.

 6. SALK, J. E. et al.: A clinical epidemiological and immunological evaluation of vaccination against epidemic influenza, Am. J. Hygiene, 42: 57, 1945.

 7. Francis, T. Jr. et al.: Effect of vaccination against epidemic influenza B. J. Am. M. Ass., 131: 275, 1946.

 8. SALK, J. E. et al.: Immunization against influenza with observations during an epidemic of influenza A one year after vaccination, Am. J. Hygiene, 42: 307, 1945.

NON-RENAL HYPERTENSION*

Sydney M. Friedman, M.D., Ph.D. and Constance L. Friedman, M.Sc.

Montreal, Que.

AN intensive period of investigation into the etiology of hypertension was initiated when Goldblatt and his collaborators induced a rise in the blood pressure of dogs by clamping the renal artery.1 Extending their observations in a series of elassical experiments, they showed that interference with renal circulation could lead to the development of a sustained hypertension.2, 2 Later work indicated that, under the conditions of the Goldblatt experiment, the kidney produced increased amounts of the enzyme renin, which acts on the euglobulin fraction of plasma protein to give rise to a powerful pressor agent hypertensin (angiotonin).4 to 7 More recently, Selve et al., working with rats, showed that desoxycorticosterone, a physiological substance, could induce nephroselerosis and hypertension, results analogous to those obtained by Goldblatt, vet without operative interference to the renal circulation.

When attempts were made to transfer this work to the problem of essential hypertension in man, several difficulties appeared. A situation directly analogous to the clamped kidney has existed in only a handful of patients with essential hypertension.9 Although Goldblatt has insisted that widespread arteriolosclerosis, similar to the effects of the clamp, is always present in the kidney of hypertensives, his views are not shared by all pathologists.9 A more serious objection to the theory of the renal origin of essential hypertension is that of Goldring et al., whose exhaustive studies of patients, using sensitive functional tests, showed that well established hypertension frequently exists without impairment of the renal circulation.10 Indeed, after a critical evaluation of the facts, these authors stated that the kidney might well be "the victim rather than the eulprit". Finally, attempts to demonstrate increased amounts of hypertensin in the blood of patients with essential hypertension have not been successful.11 to 13

Among hypertensives there is a definite proportion who plainly have a renal element in the disease. To this group, much of the advance made by animal experimentation appears transferable. On the other hand, however, many cases are without apparent renal basis in the early stages, and it is concerning this group that controversy exists.

It seemed to us that once the concept of nonrenal essential hypertension was acceptable. the rise in blood pressure might be regarded as a compensatory phenomenon. Scant attention appears to have been paid to the equilibrium state between the net perfusion pressure of the blood and the perfusibility of the tissues, yet an upset in this equilibrium might well demand a compensatory increase in hydrostatic pressure. Many factors are operative in the maintenance of this equilibrium, but among these we were attracted to those substances which might be expected to change under varying conditions, with a concomitant change in their contribution to the tissue osmotic pressure.

The first experiment devised attempted to remove surgically the sources of hyaluronidase

^{*} From the Department of Anatomy, McGill University. Montreal.

This work was supported by a grant from the Life Insurance Medical Research Fund.

(mucinase) as far as possible. The experiment was admittedly not crucial, since although testis and the vitreous humour of the eye are the major sources from which hyaluronidase has been extracted, other sources not amenable to extirpation are known. This enzyme breaks down the complex polysaccharide hyaluronic acid to smaller fragments.14 The substrate hyaluronic acid appears to be widely distributed throughout the tissues of the body and has been related to the tissue-binding substance. At best we viewed this particular enzyme system as only one of many possible systems of that type and not necessarily the metabolic mechanism for which we were looking. Several lead experiments were performed and since these all gave the same result only the final arrangement is here presented.

EXPERIMENTAL

Ninety immature male albino rats, averaging 40 grams in weight, were divided into four groups. Group 1, consisting of 15 animals, served as untreated controls, while group 2, with 25 animals, served as castrate controls. In the 25 animals of group 3 enucleation of the eye was performed at the start of the experiment, while the 25 animals in the 4th group were both castrated and enucleated.

All operations were performed on the same day, using ether anæsthesia. Castration was performed through a midline abdominal incision. The operation for the removal of both eyes, enucleation, was very simple in the rat. The dense orbital fascia at the lateral canthus was incised about one-sixteenth of an inch with fine seissors. The globe was extruded between the jaws of fine curved forceps by pressure applied at the upper and lower orbital margins. The forceps was then slipped behind the globe and held closed, while the globe was removed with curved seissors. Upon release of the forceps, very little bleeding occurred. The eyelids at once filled in the empty orbit and full closure occurred within a few days. The eating habits and activity of the animals suggest that the operation is not unduly tranmatic. No sepsis developed.

Four weeks after operation, blood pressure, renal clearance of inulin and sodium para amino hippurate (PAH), and pulse rates were determined. These tests were completed in ten days, and the animals sacrificed on the 40th day, at which time a careful autopsy was performed and certain organs fixed in Suza for subsequent weighing and histological study.

The blood pressure determination was performed using the method of Byrom and Wilson¹⁵ with ether as anæsthetic. A careful attempt was made to keep the degree of anæsthesia uniform. To ensure objectivity, the plethysmographic end point and the manometric reading were noted by separate observers. In a further effort to eliminate error, many repeat determinations were carried out on different days and comparable numbers of animals from each group were used each time pressure was determined. The renal clearance

	Group 1	Group 2	Group 3 '	Group 4
No. of animals	15.	25	25	25
Average initial weight	38 gm, (25 - 50)	42 gm. (29 - 60)	42 gm. (28 - 48)	41 gm. (35-60)
Average final weight	184 gm.	187 gm.	165 gm.	173 gm.
Mean blood pressure	103 mm. Hg. S.D. ± 9.8	103 S.D. ± 8.0	117 S.D. ± 11.0 p < 0.01	$\begin{array}{c} 117 \\ \text{S.D.} \pm 14.8 \\ \text{p} < 0.01 \end{array}$
Organ weights Testis/100 gm	1.33 gm. S.D. ± 0.12		0.91 gm. S.D. ± 0.07 p < 0.01	
Heart/100 gm	360 mgm	400 mgm. SD + 30	400 mgm. S.D. + 40	410 mg. S.D. ± 40

TABLE I.

 $S.D. \pm 30$ S.D. ± 30 SS0 mgm. Kidney/100 gm. 890 mgm. 850 mgm. ,900 mgm. $\text{S.D.} \pm 60$ S.D. \pm 50 S.D. ± 50 S.D. \pm 60 p < 0.0222 mgm. 20 mgm. 19 mgm. Adrenal/100 gm, 18 mgm. S.D. ± 3.7 S.D. + 3.4S.D. ± 4.0 S.D. \pm 3.1 378 Pulse rate 358 367 398

tests were done by the method of Friedman, Polley and Friedman, ¹⁶ for which 8 animals (2 from each group) were handled each day without anæsthesia. In all, clearance studies were carried out on 10 animals from each group.

of any real increase in heart rate or force would argue, at least in part. against the blood pressure rise being a cardiac phenomenon. Finally, it seems that the hypertensive effect was not due to any gross adrenal change.

TABLE II.

Renal function	Group 1	Group 2	Group 3	Group 4
C e.c./100 gm	0.65 S.D. ± 0.08	0.71 S.D. ± 0.07	0.83 S.D. ± 0.13 p < 0.01	0.82 S.D. ± 0.10 p < 0.01
C c.c./100 gm, PAH	4.1 S.D. ± 0.4	4.1 S.D. ± 0.4	5.0 S.D. ± 0.3 p < 0.01	5.0 S.D. ± 0.3 p < 0.01
Tm mgm./100 gm PAH	0.20 S.D. ± 0.02	0.18 S.D. ± 0.01 p < 0.05	0.23 S.D. ± 0.02 p < 0.01	0.23 S.D. ± 0.01 p < 0.01
$C_{IN}/C_{PAH} = F.F. \dots$	16.7%	16.4%	15.0% .	17.4%
C /Tm	20.5	22.8	22.4	22,7

Pulse rate and heart sounds were recorded in 8 animals from each group using the apparatus of Friedman and Martin.¹⁷

Table I summarizes the first set of pertinent data. The enucleate animals of group 3 failed to gain in weight as well as the controls; this effect was also seen to a lesser degree in the enucleate and castrate animals of group 4. The enucleate animals were restless and excitable, a fact not wholly unexpected. The average blood pressure in both these groups was significantly elevated when compared with the controls. This was all the more striking since the measurement was done with the animals anæsthetized, a circumstance which could be expected to abolish any neurogenic component. Six animals in group 3 and 5 in group 4 had pressures ranging from 130 to 150 mm. Hg. Statistical analysis rules out the possibility of this being a chance observation.

Testis weight in group 3 was considerably below the normal, a finding which has been well documented in other species and shown to be due to the absence of neurohypophyseal stimuli. Thus, in effect, the ennelcation has partially castrated the animals of group 3, so that they must be compared not only with the intact but also with the castrate controls. The moderate enlargement of the heart shown in the table occurred also in the eastrate controls so that this may not have been due to a hypertension. In view of the short duration of this mild hypertension (40 days) a cardiac hypertrophy was not to be expected. The absence

Table II summarizes the results of the clearance tests. It is at once apparent that changes have occurred in both groups 3 and 4 which cannot be construed as a castration effect. The clearance of both inulin and PAH is significantly elevated, both to the same degree, so that the filtration fraction remains the same. There is thus a hæmodynamic alteration expressed as an increase in renal blood flow. Tm the functional measurement of tubular PAH,

mass, is likewise increased, suggesting that the kidneys are hyperfunctional. This functional study receives support from the kidney weights. for while, in confirmation of the literature. the kidney size was reduced in group 2. the tendency of the kidney in the castrate male to become smaller was apparently offset in both groups 3 and 4 by the increased functional demand. The sensitivity of the functional tests is borne out in group 2 by the decline of Tm to the same degree as the decline in actual kidney weight.

Enucleation has thus elevated the blood pressure and secondarily induced a hamodynamic and functional alteration in the kidney. This would appear to be a specific result of the operation. No obvious pathological change was found in the sections of kidney and testis examined. It seems evident that a hypertension has been produced which is neither renal nor neurogenic in origin. Whether or not this bears a relation to human hypertension, it is clear that the blood pressure may be raised without renal damage.

Although the findings lead to speculation on many points, we do not feel that they as yet substantiate any specific hypothesis. Further experiments extending these findings are now in progress.

SUMMARY

- 1. Following bilateral enucleation of the eye in the male albino rat the blood pressure becomes significantly elevated within 40 days.
- 2. This hypertension is not due to, nor is it increased by, castration.
- 3. Renal tubular mass and renal plasma flow measured by the use of inulin and PAH are increased following the operation.

We would like to express appreciation to Prof. C. P. Martin for his encouragement of this work.

REFERENCES

- GOLDBLATT, H., LYNCH, J., HANZAL, R. F. AND SUM-MERVILLE, W. W.: J. Exp. Med., 59: 347, 1934.
 GOLDBLATT, H.: Ann. Int. Med., 11: 69, 1937.
 Idem: Physiol. Rev., 27: 120, 1947.
 BLAIOCK, A. AND LEVY, S. E.: Ann. Surg., 106: 826, 1937.

- 3. Idem: Physiol. Kev., 21: 120, 1541.
 4. Blaiock, A. and Levy, S. E.: Ann. Surg., 106: 826, 1937.
 5. Fasciolo, J. C., Houssay, B. A. and Taquini, A. C.: J. Physiol., 94: 281, 1938.
 6. Page, I. H.: J. Urol., 46: 807, 1941.
 7. Concoran, A. C. and Page, I. H.: Am. J. Physiol., 130: 335, 1940.
 8. Sllye, H., Hall, C. E. and Rowley, E. M.: Canad. M. A. J., 49: 88, 1943.
 9. Goldring, W. and Chasis, H.: Hypertension and Hypertensive Disease, The Commonwealth Fund, New York, p. 112, 1944.
 10. Goldring, W. Chasis, H., Ranges, H. A. and Smith, H. W.: J. Clin. Invest., 20: 637, 1941.
 11. Gregory, R., Ewing, P. L., Levin, W. C. and Ross, G. T.: Arch. Int. Med., 76: 11, 1945.
 12. Friedman, B. and Prinzmetal, M.: Ann. Int. Med., 12: 1617, 1939.
 13. Taquini, A. C. and Fasciolo, J. C.: Am. Heart J., 32: 357, 1946.
 14. Thomson, D. L.: McGill M. J., 13: 51, 1944.
 15. Byeom, F. B. and Wilson, C. J.: J. Physiol., 93: 301, 1938.
 16. Friedman, S. M., Polley, J. R. and Friedman, C. L.: In preparation.

- FRIEDMAN, S. M., POLLEY, J. R. AND FRIEDMAN, C. L.: In preparation.
 FRIEDMAN, S. M. AND MARTIN, W.: In preparation.
 BENOIT, J. AND OTT, L.: Yale J. Biol. d Med., 17: 27,
- 1944. 19. SELYE, H.: J. Urol., 42: 637, 1939.

DIAGNOSIS OF VIRUS INFECTIONS.—In a Chadwick lecture on February 18, Prof. S. P. Bedson, F.R.S., said that in virus work insufficient use is made of new diagnostic procedures. It is still widely believed that all viruses are too small to be seen with the microscope, yet in quite a number of these diseases microscopical demonstration of the causal virus is of diagnostic value. This is true of trachoma and of those conditions caused by the related virus of inclusion conjunctivitis; the virus of lymphogranuloma venereum can at times be demonstrated in smears made from inguinal buboes; and recent work has shown the usefulness of examining smears from the skin lesions of smallpox. Even where the virus cannot be seen, histological changes such as inclusion bodies can be looked for; their occurrence is always suggestive of virus infection, and sometimes, as with the Negri body in rabies, it is diagnostic.

It is still not generally appreciated, said Professor Bedson, that the \serological reactions employed in bacteriology are equally applicable to the identification of viruses or the diagnosis of virus disease. Of these reactions the complement-fixation test is probably the most valuable; it can be used either to demoustrate the presence of the causal virus, as in smallpox, or for the detection of antibody, as in influenza, psittacosis, lymphocytic choriomeningitis, lymphogranuloma venereum, and mumps.—The Lancet. March 18, 1947.

CASE' REPORTS

A CASE OF RUPTURED CHORIONEPITHELIOMA

William Oliver Stevenson, M.B., F.R.C.S.[Edin.&C.]

Hamilton, Ont,

Cases of chorionepithelioma are not very common and I believe this case is worthy of recording on account of the rare condition which complicated it.

Mrs. R.R., aged 20. married one year, no children, was brought to St. Joseph's Hospital, Hamilton, by Dr. A. R. Woods, of Dundas, on January 13, 1944, with the following history.

She menstruated normally up to December 1, 1943, 5-day type by 28. The next menstruation began on December 31 and continued for nine days, with many clots. This was very unusual and she did not notice anything abnormal but the clots. On January 13, 1944, she had her usual breakfast and while doing her work about the house at 9 a.m., she was taken with a sudden pain in the lower abdomen, which she describes as being like pins and needles. She lay down for an hour. The pins and needles sensation continued all through the morning and at 11 a.m. she was taken with a second severe pain, following which she fainted, and her physician was sent for.

On admission to hospital, the pulse was almost imperceptible, blood pressure was 70 over 40; she was very pale, with sighing respirations and temperature 96, white blood count 23,000, red blood count 2,540,000. A diagnosis of ruptured ectopic gestation was made.

Operation was undertaken immediately. The abdomen was full of blood clots and blood. The right tube and ovary were normal and the left tube was normal. The left ovary was the site of a corpus lutenm of pregnancy. The body of the uterus was slightly larger than normal. It was soft, and blood was pouring through a small aperture on the front of the fundus, apparently ruptured from within. There were five or six soft blue areas on the anterior surface and some were noticed on the posterior surface, and these soft blue areas looked like holes in the uterus which were covered only by the serous coat. A quick supra-vaginal hysterectomy was done, using only four clamps.

The patient was in desperate condition, and an -intravenous had been started. We had not had time to get suitable donors for transfusion and it was be-fore the days of our blood bank. On three previous occasions I had to reinfuse desperate cases of ruptured ectopic gestation and I decided to do the same with this case. As much blood and clots as possible were taken out of the abdomen and strained through twenty layers of gauze, to this was added 1,000 c.c. of saline solution and this was given intravenously. The patient left the operation room with a perceptible pulse and fairly good colour. She made an uneventful re-covery, with the aid of two further transfusions. She left the hospital on the 14th day.

Pathological report.—Specimen is a uterus without the cervix. It measures approximately 6 cm. in length, 6.5 cm. in maximum width and 4 cm. in maximum thickness. There are 2 or 3 perforations through the uterine wall, one through the anterior and one through the posterior wall; these are about 5 to 10 mm. in diameter and tags of soft, granular, pink to red tissue are protruding through them. In addition, the anterior surface displays a number of bluish spots from a few mm. up to nearly 1 cm. in diameter. On

section, the myometrium over these areas is extremely thin, not more than 2 or 3 mm. in thickness. The uterine cavity contains a mass of spongy brown to red tissue measuring 6 cm. in maximum diameter. Scattered through this tissue are small clear vesicles from a few mm. up to nearly 1 cm. in diameter. The uterine wall is thin everywhere, being not more than

8 mm. at any point.

Microscopic examination.—Sections from the interior of the uterus show large masses of hyalinized necrotic tissue and cellular masses of varying size composed of groups of both Langhans and syncytial cells. The Langhans cells predominate. They are variable in size and their nuclei are variable and often quite large (over 15 \mu in diameter); chromatin granules are frequently coarse. Loosely scattered cells are present, similar to those forming the cellular masses. These occur especially near the surfaces of the necrotic tissue or lining small cystic spaces in it. Shadows (ghosts) of similar, but necrotic cells can be seen in many places. Definite vesicles are present, scattered through the necrotic tissue and these are covered by Langhans and syncytial cells, frequently several

Masses of necrotic tumour tissue can be seen deep in the myometrium, containing or accompanied by living tumour cells similar to those described above, scattered singly or in groups. A few patches of basal endometrium line the uterine cavity in places. Diag-

nosis: chorionepithelioma.

Upon receiving the above diagnosis, we were extremely alarmed that by giving the reinfusion of blood, we had taken away this patient's chance of recovery. However, in September of 1946, two years and eight months having elapsed, this patient is healthy and well. states that she menstruates for one day per month and this has been sufficient to spare her any distressing menopausal symptoms.

Chorionepithelioma has always been thought to be an extremely malignant tumour, but in the light of our experience in the above case and also the cases cited by W. P. Tew, the question arises as to whether they should be considered so malignant.

REFERENCE

Tew. W. P.: Chorionepithelioma, Canad. M. A. J., 54: 469, 1946.

A CASE OF ENDOTHELIAL CARCINOMA OF THE PLEURA

F. L. Skinner, M.D., M.R.C.P.E.

Vancouver, B.C.

The following case report is judged to be of sufficient value for record.

The patient, a woman of 42 first had pain in the left lower chest in March, 1946. This became gradually worse. In June, fluoroscopic examination resulted in a diagnosis of pleurisy; and in a few weeks dyspnæa developed. In August, another x-ray was taken which was declared to be negative. However, the pain in the chest became worse, and fever developed to 102°. I saw her first on August 22, when there was evidence of a large pleural effusion on the left side, both clinically and by x-ray. Thoracentesis showed large amounts of cloudy amber finid containing polynuclear cells, and lymphocytes with some diplococci. The urine was negative. The blood showed 4,450,000 red cells, 9,800 white cells, Hgb. 84%, and a normal differential count. Sedimentation rate was 23 mm. in one hour.

The fever continued and the chest was tapped several times, penicillin injections being given continually. As much fluid as possible was removed on September 10, but x-ray still showed no change in the lung field itself. The pain became so severe that a nerve block was carried out on the left side. The diagnosis of carcinoma was made on September 14, and it was assumed that it was of the primary pleural type. Guinea-pig inoculation of the pleural fluid was negative for tuberculosis. Thoracentesis was necessary on several occasions and the patient gradually failed and died on November 27.

AUTOPSY REPORT

The left lower cavity contained about four quarts of dark bloody fluid, and the lung was collapsed and densely adherent to the mediastinum. It was covered laterally by a heavy white cartilaginous plenra, and the pericardium was infiltrated by the tumour growth. parietal plcura was also white and almost cartilaginous in consistency, with many buttons of malignant tissue. The trachea and bronchi were clear and there was no evidence of tuberculosis and no enlarged hilar glands. The right lung was normal on section, and the pleural cavity contained about 200 c.c. of clear fluid.

Elsewhere there was nothing of note except a small

white nodule in the pancreas.

Microscopic.-Lungs deeply engorged, with moderate ædema. Section of the pleura shows a very marked and extensive area of necrosis, composed largely of cells which have a tendency to spindle shape. They vary greatly in size with a moderate amount of connective tissue stroma. This is markedly hyperchromatic. There is a great deal of fibrons tissue through this as a result of irritation and inflammatory reaction. Many of these cells are large in size, numbers of them are multi-nucleated. Many of them are in the process of mitosis. In the activalty growing part, there are many areas of andoactively growing part, there are many areas of endo-thelial spaces lined with cells, giving it a spongy open appearance. In the denser portion, it is deeply and extensively fibrosed. The pancreas shows normal actinar and islet tissue, the ducts appear healthy. There is one small metastasis with moderate fibrosis around it. Section of the lung with the thickened tumour mass shows invasion of this process into the superficial layer of the lung with very marked fibrotic reaction. The regional lymph glands are involved in the same process, and completely replaced.
Pathological diagnosis, primary endothelioma of the

left pleura.

My thanks to Dr. A. Y. McNair, Pathologist to St. Paul's Hospital, Vancouver, B.C., for his report.

307 Lyric Theatre Bldg., 751 Granville Street.

A CASE OF CYSTIC DISEASE OF THE LIVER

M. E. Hobbs, M.D.

Millbrook, Ont.

Non-parasitic cysts of the liver have been described by many terms, such as cystic disease of the liver, cystic liver, cystic degeneration of the liver, polyeystic disease of the liver and congenital cysts of the liver. A perusal of

available literature has led me to conclude that polycystic disease of the liver is a rare condition when found without cystic disease in other organs. I find some comfort in the above belief because the condition was not even considered in making a differential diagnosis in the case to be reported. It is a fact that surgical treatment of solitary cysts of the liver is far more often possible than in cystic disease of the liver. because of the generalized nature of the lesion with reference to the liver substance. This case will show that although the technical difficulties of operation are considerable, operation may provide a cure insofar as the patient's symptoms are concerned.

Mrs. E.T., a white female, aged 66, was admitted to St. Joseph's Hospital, Peterborough, Ont., on December 3, 1942, because of a mass in her right abdomen, present, to her knowledge, about five years. As a child she was always healthy and her parents had no knowledge of any abdominal swelling. She was not aware of any abnormal abdominal findings as a young women and was married at the age of 25 and had no children. The abdominal swelling was first observed by the patient in 1941. It was not tender and she felt certain that it varied in size from time to time. Six years before admission to hospital the patient began to have attacks of pain in the upper right quadrant of the abdomen and it was thought she had gall stones. She had some cough and bouts of sneezing and pain between her shoulder blades. Following this, these attacks occurred about yearly and on each occasion when examined no note was made of any abdominal mass.

In January, 1942, her family physician sent her to the Royal Victoria Hospital in Montreal for consultation, because of the abdominal swelling. pected that she had cancer of the liver, because there was a family history of cancer and she had lost considerable weight. The patient was told while in hospital that her investigation revealed gall bladder trouble. A personal communication from the family physician states that the patient-returned to her home with a diagnosis of gall bladder disease with which he did not agree. In October, 1942, the patient noted the abdominal mass enlarging. She had an attack of severe upper abdominal pain, vomited and again eonsulted her physician, who still thought that the most probable diagnosis was eaneer of the liver. From this time on the right side of the abdomen was eontinually sore, her backache persisted and she had eonsiderable pain in her right shoulder. She then eame to visit relatives in my community and was, resting and dieting for gall bladder disease. On November 27, 1942, she again had marked tenderness over the abdominal mass and vomited, at which time I saw her for the first time. Her family history was essentially irrelevant, except that one sister died of careinoma of the breast.

On physical examination the patient was mentally very alert, of anomic appearance and had obviously lost considerable weight. Her weight at this time was 118 pounds, an approximate loss of 25 pounds in one year. No jaundice was evident. The superficial veins and glands were not remarkable. Her temperature was 99.2°, respirations 17 per minute, pulse rate 90, good quality and regular. Examination of the chest showed some dullness at the base of the right lung with diminished breath sounds below the 9th rib, extending around into the right axilla. The left lung was normal. The heart was not enlarged to physical

examination; no murmurs were present; rhythm regular; blood pressure 130/84. Examined in the recumbent position the abdomen showed quite a marked change from the normal contour with a fullness extending from the right costal margin to the brim of the pelvis, bulging out the right flank and extending beyond the mid-line to the left. was observed to move downward on inspiration. Palpation showed the mass to be tender and soft for 4 inches immediately below the right costal margin. Below this it became quite firm and was not so tender and the outline lost near the right pelvie brim. lower edge of the liver was not discernible. medial margin of the mass was smooth, except near the eostal margin, where a rounded smooth mass, about 2 inches in diameter, could be felt and moved with the large mass. There was no aseites; the kidneys were not palpable; spleen was not palpable. The examinations of hernial orifices, pelvis, extremities, nervous system and reetum were negative.

Laboratory data.—Blood Wassermann, negative. Hb. 89%; red blood cells 4,840,000, white blood cells 7,100; small lymphocytes 25%, large lymphocytes 12%, polymorphonuclears 60%, cosinophiles 2%, basophiles 1%. Catheter specimen of urine was negative. Uroselectan showed kidneys well outlined and excretion of dye normal. Gastro-intestinal series showed no abnormality of the gastro-intestinal tract. X-ray of the chest showed the diaphragm on the right side to be smooth, elevated to the 9th rib and limited in excursion on inspiration. The costophrenic angle was free. Other than this the chest x-ray was normal. A preoperative diagnosis of hydrops of the gall bladder or parasitic cystic disease of the liver was made.

On December 7, 1942, operation was performed by Dr. R. K. Magee, of Peterborough, and myself. Using nupercaine anæsthesia an upper right rectus incision was made and on opening the peritoucum it was found that a large bluish grey cyst separated the liver from the diaphragm. The rounded mass which had been felt in the right iliae fossa was the liver and the tense area under the costal margin was the cyst. Along the lower margin of the right lobe of the liver there were several small cysts one-half to one inch in diameter. The gall bladder was normal. There were a few smaller cysts under the left lobe of the liver. Palpatiou of the kidneys showed no abnormality and confirmed the uroselectan test.

Technically it was very difficult to remove the large eyst from the diaphragm. It was adherent to the whole right dome. First it was aspirated of 1,600 e.e. clear albuminous liquid. The eyst wall was now opened and it was seen to be one large eavity. Grasping the wall in one hand it was gradually separated from the diaphragm, leaving bare musele fibres. The eyst wall was ent around at the liver junction. The surface of the liver appeared to be eratered as if many minute eysts had contributed to the formation of this large eyst. Three smaller eysts were removed from the lower edge of the right lobe of the liver and sent to the laboratory for examination intact. It was necessary to take liver substance with the eysts as there was no line of cleavage. A drain was left in the subdiaphragmatic space and the abdomen closed in layers.

The postoperative course was uneventful. The drain was removed in two days. The patient was kept flat for ten days to encourage the liver to adhere to the diaphragm. A personal communication in December, 1946, tells that she feels quite well except for some pain in right shoulder and now weighs 135 pounds. Examination January 26, 1947, shows the liver not palpable in upright or recumbent position.

The pathological report was as follows:

The gross specimen consisted of a flat membrane 8" x 10" x 1/4". It was wrinkled and the inner surface was a reddish brown colour. There was also a group of three cysts one inch in diameter, filled with a clear watery fluid. No daughter cysts were present.

The microscopic examination showed that all cysts were lined in part by cubical epithelium and there was a little hepatic tissue and a few dilated bile ducts on their walls. The bile sinusoids in the hepatic tissue were dilated. There was no double wall as seen in hydatid cysts. The fluid gave a strong reaction for blood sediment and consisted of degenerated hepatic cells. No bile pigment was present. No hooklets or scolices were seen. Diagnosis: non-parasitic multilocular cysts of the liver.

It will be noted that although this patient was investigated thoroughly prior to operation. it was impossible to make an accurate preoperative diagnosis. The condition should be definitely considered when dealing with a case presenting an clevated diaphragm, normal in contour, when a mass is found as well, protruding below the right eostal margin. Only by the process of elimination and bearing in mind the possibility of cystic disease of the liver, could one hope to make the preoperative diagnosis The disease is uncommon and is eorrectly. usually associated with cystic disease of other organs. It is doubtful if solitary eystic disease of the liver differs from the polycystic nonparasitic variety. In this case the small cysts were multilocular and the large cyst was the solitary type. Ackman and Rhea¹ found only 11 cases of non-parasitic cysts of the liver in 6.141 necropsies. Davis² in 1937 gathered 499 cases of cystic disease of the liver, including one of his own. Of Davis' cases only 241 of the 499 were of the polycystic type. The remainder were solitary or unilocular, solitary and multilocular or unstated in 51. Other writers found about the same proportion in eases reviewed by them. The condition is commoner in the right than the left lobe. Out of 80 cases reported by McCaughan and Rossienr,3 52 were located in the right lobe, 11 in the left lobe, 2 in the middle lobe and 6 seattered throughout the liver. In 9 eases the position was not noted. In this ease the disease was grossly confined to the Since cystic disease of the liver right lobe. may be compatible with good health, most cases in the literature are in adults. McCaughan and Rossieur stated that the average age in their group was 33 years. It oecurs about three or four times as commonly in females as males.

HYPOTHESES AS TO PATHOGENESIS

Four of the most prevalent hypotheses as to the pathology are described by Clagett and These are divided as follows: (1) Hawkins.4 Inflammatory; (2) degenerative; (3) tumour hypothesis: (4) development hypothesis.

The reader is referred to this excellent discussion as to origin of the eysts. It seems to me that the developmental origin of these lesions is the most plausible, because the eysts never contain bile and according to many authorities are associated with evstie disease else-Moschowitz⁵ gives the proportion as being about 90%. From a surgical standpoint if the condition is discovered by chance and no symptoms referable to the disease are present. operation is not justifiable. Indication for operation would be, infection of a cyst or cysts, or pain on pressure on neighbouring structures. If these prerequisites are present, eongenital eystic kidney might not entirely preclude operation.

SUMMARY

Indications for operation in this case were: First, interference with nutrition; second, pain; third, fever, although no infection was found. The condition is briefly discussed as to etiology and pathology. Diagnosis and treatment are stressed. It is suggested that the condition be considered routinely in any case presenting a high diaphragm with normal contour as well as a mass emerging from below the right costal margin. Jaundice may occur at intervals and it is possible that a patient might be erroneously labelled with a diagnosis of eareinoma of the liver.

REFERENCES

- 1. ACKMAN, F. D. AND RHEA, L. J.: Brit. J. Surg., 18: 645, 1931.
 2. DAVIS, C. R.: Am. J. Surg., 35: 590, 1937.
 3. McCauchan, J. M. AND ROSSIEUR, L. J. Missouri M. Ass., 40: 306, 1943.
 4. CLAGETT, O. T. AND HAWKINS, W. J.: Ann. Surg., 123: 111, 1946.
- 5. Moschowitz, E.: Am. J. M. Sc., 131: 674, 1906

TRACHEOBRONCHIAL DIPHTHERIA IN AN ADULT

J. D. Balfour, B.A., M.D. and N. J. England, M.B.E., M.D.

Westminster Hospital, London, Ont.

Tracheobronchial diphtheria in adults is a rare condition. The following is a report of a fatal ease that occurred in Westminster Hospital, London, Ont.

A 56-year old patient, who had been on the psychiatric wards since November, 1922, with a diagnosis of dementia præcox, was seen by the Medical Service at 4 p.m. on June 20, 1946. The history was that he had eaten his noon meal and the orderly in attendance had noted his face to be flushed. A helpful history from the patient was not obtainable due to his mental condition.

On examination his temperature was 101°, pulse 105 and respirations 33. He presented a dusky, livid, cyanosis most noticeable in the lips, ears, forchead, and nailbeds. Examination of the mouth and throat revealed a diffuse greyish membranous lesion involving the soft palate, uvula, and left tonsillar fossa. This membrane could be fairly easily moved, lcaving a bleeding hyperæmic base. The cervical glands were not enlarged. The heart was regular in rhythm and no murmurs were Fine moist râles were noted at the right base with diminished air entry; otherwise the lung fields were There were no abuormal findings in any of the other body systems.

Immediate throat smears were taken and following this 60,000 units of diphtheria antitoxin were given intramuscularly together with continuous oxygen therapy and penicillin, units 15,000, every three hours. The following morning cultures of the throat were reported strongly positive for C. diphtheriæ.

At that time cyanosis was the outstanding feature and was difficult to control even with continuous oxygen therapy. There was no laryngeal stridor and no particular respiratory distress. The heart remained forceful and regular and the patient did not appear toxic although his condition was somewhat difficult to evaluate due to his inability to co-operate.



Fig. 3

Fig. 1.—Portable chest x-ray showing tracheal deviation, displacement of heart to the right and increased density over most of right lung field.

Fig. 2.—Electrocardiogram, taken five hours before death, showing left axis deviation but no definite

abnormalities.

Fig. 3.—Showing the necrotic membranc extending from the vocal cords to the smaller divisions of the bronchi.

By the afternoon of June 21, a fairly marked mediastinal shift to the right had developed with tracheal deviation and an apex beat that was felt best under the xiphisternum. Practically the entire right lung field showed dullness on percussion, fine crepitant râles and bronchial breathing. A portable chest x-ray was taken (see Fig. 1) and showed mediastinal shift to the right with a marked density over most of the right lung As the patient exhibited a poor cough reflex it was felt that a massive atelectasis of almost the entire right lung with a complicating pneumonia had developed. The possibility of direct blockage of the bronchi by diphtheritic membrane was entertained but was thought

At 2.00 a.m. on June 22, the patient became very cyanosed with an imperceptible pulse. Stimulants of various types were administered and he finally responded, to continue along at his former level. Careful observa-

tion failed to reveal any inspiratory crow or strider, although the cyanosis appeared to be gradually increas ing. Up until noon of June 22 the patient had received a total of 120,000 units of diphtheria antitoxin, 10,000 of which were administered intravenously. On the afternoon of June 22, his condition deteriorated. The pulse gradually became weaker, the chest filled with fluid and the patient expired at 5.15 p.m. on June 22.

An electrocardiagram taken approximately five hours before death (see Fig. 2) showed a left axis deviation

but no definite abnormality.

From the clinical standpoint the diagnosis was faucial diphtheria with a right sided pulmonary atelectasis and pneumonia. It was felt that death was due directly to

respiratory embarrassment.

Post mortem examination.—The salient points of interest were as follows. A block dissection of the neck and thoracic organs was carried out. In the posterior pharynx was a small ulcerated patch with a necrotic slough over the right tonsillar area. The mucous membrane of the base of the tongue and the left tonsillar area was diffusely reddened and injected. cords were ordematous and matted together with a slough. Extending downward from the level of the vocal cords into the trachea, right and left main bronchi and into the smaller bronchi was a necrotic greyish-white membrane. This lesion is well shown in Fig. 3. The underlying mucous membrane of the larynx, trachea, right and left main bronchi and the smaller bronchi was diffuscly reddened.

The right lung showed a widespread lobar pneumonia with scattered areas in the left lung.

Bacteriology.—Cultures from the lesion in the right tonsillar area ante-mortem gave a heavy growth of G. diphtheriæ in about 16 hours incubation. Subsequent virulence tests on the organisms isolated gave a strongly positive result.

Cultures from the right tonsillar area and the larynx post mostem were negative for C. diphtherix.

DISCUSSION

A review of the literature reveals that tracheobronehial diphtheria in adults is a rare eondition. Rolleston' reports 16 cases between 1899 and 1940; Colarusso one case; Lynah 2 eases and Steigrad one. Fatal termination is rare. Troisier, Wolf and Marquezy⁴, Zoeller⁵ and Lynah³ each report one fatal case and Rolleston¹ two deaths.

This review of the literature reveals 22 cases of traeheobronehial diphtheria in adults, 5 of which terminated fatally.

An interesting faet noted by Butler is that the giving of antitoxin does not appear to prevent the formation of the membranous easts in the traehea and bronehi. The site of origin of the traeheobronchial diphtheria is also open to question. Lynah is of the opinion that these eases fall into two eategories: (a) those eases that originate in the lower trachea and main bronelii and spread upwards; (b) those that originate in the larynx or pharynx and spread downwards.

In contrast with the ineidence and mortality of laryngeal diphtheria in adults the lesion is not uncommon in children and the mortality is high. Welforda states that 24 cases of tracheobronchial diphtheria were admitted over a period of 18 months to the Municipal Contagious Disease Hospital, Chicago. During this time 11% of all deaths due to diphtheria were of the traeheobronchial type. A common finding in these children at autopsy was hemorrhage in the suprarenal glands. This lesion was absent in the present case.

Acknowledgment and thanks are extended to Dr. H. T. Norry for the photography.

REFERENCES

- REFERENCES

 1. ROLLESTON, J. D.: Laryngeal diphtheria in adults, Clin. J., 69: 321, 1940.

 2. WELFORD, T. N.: Tracheobronchial diphtheria, Am. J. Dis. Chil., 37: 944, 1929.

 3. LYNAH, H. L.: Tracheobronchial diphtheria, Laryngoscope, 26: 1193, 1916.

 4. TROISIER, J., WOLF, N. AND MARQUEZY, R.: Bull. et mem. soc. méd. hôp. de Paris, 46: 557, 1922.

 5. ZOELLER, C.: Ibid., 52: 426, 1928.

 6. BUTLER, E. F.: Tracheobronchial diphtheria: repeated bronschoscopic removal of membranes, Ann. Otol., Rhinol. & Laryngol., 42: 927, 1933.

 7. STEIGRAD, J.: Primary laryngeal diphtheria in an adult, Med. J. Aus., 1: 592, 1934.

MUCOSAL RESPIRATORY SYNDROME*

J. F. Meakins, M.D., F.R.C.P.[C.]

Montreal, Que.

Stanyon and Warner reported 17 cases of mucosal respiratory syndrome found in Canadian Army Hospitals. The syndrome is one of striking and varied lesions of all mucous membrane and skin surfaces, pneumonia, prostration and high fever. It has impressed all who have seen it by its discomfort, duration and danger. These authors have stressed that "The chest findings were an integral part of the syndrome". They stated also: "Drug reactions particularly to the sulfonamides have been incriminated by several writers as the cause of this syndrome. Many of these cases received some form of sulfonamide usually sulfathiazole, particularly in the early stages, but on the other hand over half of the cases received no medication whatever until the disease was well established. This syndrome had been described long before the advent of sulfa drugs. No common drug could be involved in our series."

In a brief survey of the literature six2, 2, 4, 5, 6, 9 other interesting descriptions of the same or a very similar elinical syndrome of pneumonia with extensive mucous membrane and skin lesions or reactions were in many cases4,5,6 laid at the door of sulfonamide sensitivity. It must

be pointed out that the similarity of the cases noted by White,4 Greenberg and Messer⁵ and Johnson⁶ to those of Stanyon and Warner¹ and Schoemperlenº both as to symptomatology and course is too great for coincidence. The syndrome of conjunctivitis, stomatitis, the involvement of the other mucous membranes and the cutaneous eruptious associated with a pncumonia is practically the same in all cases. Stanyon and Warner's comment regarding the lack of association with sulfonamides in their cases has been already noted.

In instice one must note Kasselberg's case of an extremely similar mucocutaneous reaction, without apparent pneumonia, following the giving of 4 gm. of sulfamerazine superimposed on the use of sulfathiazole three weeks before. It is of interest that his twenty year old patient had had "pneumonia" at 6, 7 and 8 years of age. No note was made of chest findings or chest x-ray during the illness described. Raffeto and Nichols's reported a similar condition in a child following the use of sulfadiazine: again no pulmonary disease was found.

In all cases described, the bacteriology of the blood, eye lesions, mouth lesions, skin lesions and sputum was unremarkable. Where pneumonia was found the etiology was undetermined. Treatment has always been good nursing care and supportive measures. Schoemperlen9 in his presentation of a clear-cut case suggested the likelihood of an allergy of hypersensitivity being the cause of the widespread lesions. With this in mind he used benadryl with rapid relief of symptoms and prompt recovery.

A case diagnosed as having the mucosalrespiratory syndrome is presented herewith.

C.C.B., aged 18, was admitted to a small country hospital on December 1, 1943 because of head cold. malaise and fever of several days' duration followed by the onset of cough on the day of admission. Admission examina-tion showed a temperature of 99° F., pulse 90, and respirations of 15. The mucous membrane of the nose and throat was congested and inflamed, the skin was flushed but no rash was noted. The lungs were clear of râles but the breath sounds were roughened. had been on sulfathiazole 1 gm. every four hours for five days. There was no previous history of the taking of any sulfonamide. He was transferred on December 7, 1943, to a larger hospital, because the temperature was rising, reaching 103.4° F. He became unco-operative, lethargie, evidence of congestion was found in the right base and many sores broke out in the mouth.

On admission the temperature was 102.4° F., pulse 100 and respirations 24. Significant physical findings: patient looks tired and ill, face flushed. Nasal passages partly blocked by muco-purulent exudate; right nostril is tender. Tengue heavily coated, tensils out, posterior pharynx crimson, no punctate hemorrhages, gums swollen, tender. Herpes blister on the lower lip. Glands: normal. Neck not stiff. Chest: shows only slightly

^{*}From the Department of Medicine, Royal Victoria Hospital, Montreal.

diminished breath sounds at right; no râles. Blood pressure: 124/60; heart not enlarged, no murmurs. Abdomen: flat, no tenderness, no organs or masses palpable. Central nervous system: lethargic, apathetic, but answers questions well. Reflexes: normal.

December 7.—Smears from gums positive for Vincent's organisms. Hgb. 91%, red blood cells 4,730,000, white blood cells 7,050. Neutrophiles 78%, lymphocytes 12%, eosinophiles 3%, monocytes 7%.

December 8.—Condition unchanged. X-1ay showed a

patchy infiltration in the right lower lung field. Given mapharsen 0.045 gm. aud intravenous 10% glucose saline, 1,000 c.c.

December 9.—Auscultation reveals some diminution of breath sounds and faint distant râles at the right base Patient has developed herpes on dorsum of hands and on legs. Direct smears of sputum negative for Vincent's organisms. Wassermann negative.

December 10.—Patient toxic and seriously ill. Temperature 104° F., pulse 130, respiration 28. Pneumonia in right lower chest is gradually clearing. Bullous and herpetic lesions seem to be spreading discretely up the arms and legs and getting larger; four have appeared on the back. Mouth and nose seem worse, are swollen, painful and bleeding. Considerable muco-purulent discharge from the eyes. Smears of pus from eyes show no organisms. Given 1,000 c.c. 5% glucose in normal saline intravenously with 200 mgm. vitamin C. Blood culture taken. Blood taken for grouping. Hgb. 71%. white blood eells 15,700.



Fig. 1.—Showing lesions of the skin of the face and mucous membranes of eyes, nose, lips and mouth. Fig. 2.—Lesions of the skin of the arms and hands.

December 11.—Patient's temperature is slightly lower today, and he is definitely less toxic. General condition is improved. Since December 8, he has been getting 2 intravenous infusions of 1,000 c.c. each daily; on the first day, 10% glucose in saline was used; since then, 5% glucose with 200 mgm. of vitamin C and 2 mgm. of vitamin K in each infusion. For prospective transfusion, patient was grouped yesterday (Group "O"—International). Six donors of blood Group "O" were crossmatched and agglutination occurred in each case. To-day two more Group "O" donors were cross matched and again agglutination occurred in each case.

On the next few days there was gradual but slight improvement although the mucous membranes were still greatly inflamed. A few drops of blood appeared per urethiam suggesting erythematons lesions of the urinary

Culture of pus from conjunctive showed: hemolytic Staph. aureus. Sputum culture and smear: "No Vincent's organisms or hæmolytic streptococci present".

December 17.—Patient's general condition seems to be slowly improving, though his temperature remains in the neighbourhood of 102 to 103°. The skin lesions scem to be healing well, and no uew ones are appearing. Urinalysis still reveals hæmaturia. Today he has râles over most of the right chest posteriorly and over the lower half of the left chest posteriorly, but he is not eyanosed or dyspnæic, has no chest pain, and is not coughing much. Hgb. 78%, white blood cells 13,400. urine: red blood cells +++. Chest x-ray: "Bronchopneumonie consolidation now involving entire right lung and left lower lobe".

December 20 .- General condition showing slow but becember 20.—General condition showing slow but steady improvement. The left upper lobe is the only one at present not involved. All other areas show crackling râles (gradually becoming less evident), with some dullness to percussion posteriorly. There is a well marked lag on the right side. Gums are still swollen and tender, but show very little ulceration. Hgb. 81%, white blood cells 16,050.

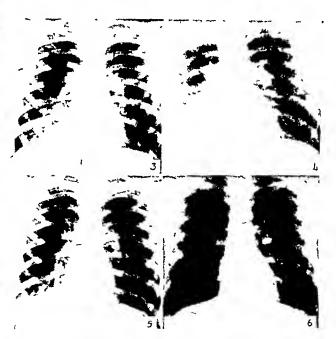


Fig. 3.—December 8, 1943—Early in the course of the disease. Fig. 4.—December 17, 1943—At the time of maximum chest findings. Fig. 5.—January 12, 1944 —Chest clear to auscultation. Patient convalescent. Some residual findings on x-ray. Fig. 6.—January 11, 1945—One year later showing normal chest.

Progress was slow but steady. By December 31, the bleeding from the gums had almost completely disappeared and x ray showed clearing of the lungs. He was discharged/home on January 19, 1944, and four weeks later all skin lesions had entirely healed. The white later all skin lesions had entirely healed. The white cell count had remained high till late in his illness, the last count on January 4, 1944, being 22,550. Unfortunately differential count was done only at the beginning, so that there was nothing to show whether there was an eosinophilic response or not.

DISCUSSION

The etiology of this syndrome is obscure. Until Schoemperlen put forward his suggestion of an allergy or hypersensitivity and himself used benadryl with more than encouraging results therapy was confined to nursing eare. supportive measures, multiple transfusions and vitamins. His use of and success with benadryl would support the sensitivity theory and it would be interesting to discover if similar responses could be obtained in cases that appear to be directly and solely due to sulfonamide reaction or sensitivity, with lesions of the skin and mucous membranes. It is hard to believe that the mucous membrane and skin lesions are connected with the respiratory disease unless as a sensitivity or toxic response to the pulmonary infection. In the mucosal respiratory syndrome it is possible that the respiratory disease noted is a mucons membrane sensitivity of the tracheo-bronchial-alveolar response system along with the skin and other mucous membranes to some common or general agent.

SUMMARY

- 1. A brief survey is presented of the literature on the subject.
- 2. Presentation is given of a case with recovery.
 - 3. The etiology is discussed briefly.

REFERENCES

- STANYON, J. H. AND WARNER, W. P.: Canad. M. A. J., 53: 427, 1945.
- 2. Markham, J. D.: J. Canad. M. Services, 1: 471, 1944.
- 3. HADDAD, N. N.: J. Canad. M. Services, 2: 657, 1945.
- 4. WHITE, G. E.: Canad. M. A. J., 49: 317, 1943.
- 5. GREENBERG, S. I. AND MESSER, A. L.: J. Am. M. Ass., 122: 944, 1943.
- 6. JOHNSON, R. D.: J. Am. M. Ass., 124: 979, 1944.
- 7. KASSELBERG, L. A.: J. Am. M. Ass., 123: 1035, 1943.
- 8. RAFFETO, J. F. AND NICHOLS, S.: J. Padiat., 20: 753,
- 9. Schoemperlen, C. B.: Canad. M. A. J., 56: 73, 1947.

The rural area serves as a definite challenge to the well-qualified public health nurse in carrying on a nursing program which includes venereal disease control. The public health nurse who studies the characteristics, customs, and attitudes of the rural population will not only render satisfactory service but will find in such study stimulation of resourcefulness and ingenuity from which she will profit. With understanding and the desire to render service to individuals who have acquired a venereal disease she is making a real contribution to the health and welfare of the rural population. This she could not do without the assistance and support of the local practicing physician, the lay health committee, and the other interested groups.- J. Ven. Dis. Inf., 28: 60. 1947.

SPECIAL ARTICLE

REPORT ON A NATIONAL SCHEME FOR TREATMENT OF RHEUMATIC DISEASE IN BRITAIN

H. S. Robinson, M.D., C.M.

London, Eng. and Banff, Alta.

The problem of the rheumatic diseases in Britain as in North America* is one of considerable magnitude. If one considers the crippling occasioned by this group of diseases (often in young people), the high incidence of these conditions in the lower income group where financial considerations prohibit long hospitalization and work absenteeism, and the loss to the national income, it becomes increasingly clear that the problem of the rheumatic diseases is one of national import.

During the past year I have had the opportunity of observing and studying the birth, in Britain, of a national scheme evolved for research and treatment of the rheumatic diseases, and have visited many of the centres involved. In view of the increased interest in ('anada with regard to these conditions it is felt that it may be of interest to consider the development of the British scheme.

In historical retrospect the development of the "baths" in various parts of England by the Romans in the Anglo-Roman era portended the treatment of the rheumatic conditions for years to come. Indeed, until recent times the spas alone were recognized as the centres for the treatment of the crippled, the gouty, and the disabled. (At least three of the four medical spas have origins dating from Roman times.) Widespread interest by the medical profession as a whole has become apparent only in the past twenty years or so. Interest was stimulated by investigators who began to point out the great incidence, disability and loss of work oecasioned by these diseases, and an extensive eampaign was launched to attempt to correct the completely inadequate knowledge about. and treatment of these conditions.

As long ago as 1922 the Minister of Health reported that one-sixth of the disability of insured persons in England and Wales was due these disorders. In 1939 Davidson and Duthie² estimated that 9.4% of the total work done by medical practitioners in Scotland was devoted to rheumatic sufferers. In 1941 the Empire Rheumatism Council' concluded that the annual loss of income in England and Wales was of the order of £25,000,000.

Development of the present scheme began in 1943 when the Minister of Health appointed a sub-committee of his medical advisory committee

^{*} A survey of the incidence in the United States in 19361 showed these conditions were first in the chronic diseases in causing disability.

to investigate the problem of rheumatic diseases. In 1936 the Empire Rheumatism Council, a combined medical and lay body was constituted, with the committee on chronic rheumatic diseases of the Royal College of Physicians acting in the capacity as medical advisory committee. The aims of the Council were to raise funds to institute and aid research and further to educate the public with regard to these conditions. Amongst its many activities this body has promoted research, stimulated undergraduate and postgraduate training, and roused public interest. Unfortunately the war interfered with these eonditions just as they were well under way. Notwithstanding this difficulty, this Council in 1941 put forward in a booklet ealled A Plan for National Action³ the first eomprehensive discussion of a plan for treatment on a national scale.

In 1944 the medical advisory committee to the Ministry of Health recommended that a number of diagnostie and research centres established in the forthcoming "regions", for the study of ehronic rheumatic diseases and further for the improvement of existing facilities for treatment and diagnosis. The following discussion is a presentation of the main features of the seheme.3,4,5

In general, Britain is divided into regional areas which number about twenty, each of which has as its central point a university medical teaching centre. In each regional area a triad eonsisting of peripheral elinies, diagnostic centre and base bed unit is set up. The movement of patients is reminiscent of an army evacuation scheme. The flow of patients is from the peripheral elinics to the diagnostic centre and from here through to the base bed centre.

A. Peripheral clinics.—These are small units set up in the eities and larger towns of the regional area (the number of these in any area to be worked out by a regional board). equipment is to be that of a modest physiotherapy department. Here simple treatment can be carried out such as heat, massage, and remedial exercises, and requires only the use of inexpensive apparatus. The personnel of the unit will be specially trained masseurs or masseuses under direction of a nurse trained in physiotherapeutie methods or physiotherapist. Supervision of the unit will be in most eases by a local physician interested in this specialty. Weckly consulting visits will be made by physicians specially trained in the diagnosis and treatment of the rheumatie diseases from the eentral diagnostic section. He will refer cases requiring hospitalization and investigation to the diagnostic centre: It is emphasized that at this unit postgraduate instruction be given to the local general practitioners with regard to the gate and Bath are being served by the university early manifestations of these diseases. is felt will result in early case contacting and thus early treatment.

B. Diagnostic centre.—The diagnostic centre is a university medical teaching centre.

necessity for this is that only in such a place is one likely to have the advantages of adequate radiological, pathological and biochemical services together with specialists in all fields of medieine. Besides functioning as a diagnostic eentre this unit also forms the central pivot of the research program and there will be at least twenty beds available for investigation and re-Here the evaluation of the patient is made and precise diagnosis (as far as possible) is established. Following this the patient is disposed of by returning to the peripheral clinic, or the rheumatic outpatient department of the teaching hospital, for out-patient eare, or, on the other hand, is referred to the base bed section if further hospitalization is indicated.

C. Base bed section.—The need for this unit hinges on the increasing appreciation of the necessity for long term in-patient treatment of eertain types of the rheumatie diseases on lines similar to sanatorium treatment. At this eentre, the approximate size of which is to be 100 to 200 beds in each region, there will be adequate facilities for treatment of every type. This includes of course such services as occupational therapy, educational and social facilities. It is recommended that this unit should be associated with similarly placed orthopædie eentres. between orthopædie and medical rheumatic specialists is recognized to be of great importance in management, and if the units are combined this liaison will be assured. The unit should be placed close to the diagnostic centre if possible to allow visiting staff easy access.

Davidson4 felt that in order to function properly the regional area would require the services of two full time physicians and one house physician at the diagnostic centre, and two house physicians and one medical registrar at the base hospital. Further the services of physieians interested in this specialty should be utilized at the peripheral outpatient elinics.

The following is the organization, in brief, of a typical regional area which reveals local adjustments in the main schema.

Regional area.—Yorkshire region, includes the West, North and East Ridings.

Outpatient and inpatient research centre. Located at the Leeds infirmary teaching hospital.

Base beds.—In three establishments at Meanwood, Pinderfields and Harrogate Royal Baths Hospitals.

Peripheral clinics.—At Bradford, Deasberg, Halifax, Huddersfield, York, Hull, etc.

PRESENT POSITION OF THE SCHEME

In England the spas formed the obvious answer to the problem of the aequisition of base beds. Thus the spa hospitals of Buxton, Harroteaching centres of Manchester, Leeds and Bristol respectively. The peripheral elinics in these areas are in various stages of formation.

In Scotland, beds of various war time E.M.S. hospitals have been made available for the purpose of base beds, in association, at present, with the medical centres of Edinburgh and Glasgow.

London presented a special problem, as Greater London includes about 25% of the population of England. It has been divided into four regional areas. At this time one of the diagnostic centres has been established. existing department of rheumatic diseases of the West London Hospital represents the first of these centres. Certain of the other teaching hospitals have special departments dealing specially with these conditions which will no doubt be utilized as the scheme grows. The base bed problem is difficult to adjust due to shortage of However, at this time part of a county council hospital and a fifty bed experimental unit are caring for some of these patients. As well as these, there are a limited number of beds in the teaching hospitals.

In review, the main advantages of the scheme

presented above would appear to be:

A. Provision for early ease finding by means of: (1) Peripheral clinies supervised by physicians trained in diagnosis and investigation of these conditions. (2) Postgraduate training of general practitioners in the recognition of the early manifestations of rheumatic diseases.

B. Provision for trained specialists and investigation facilities to enable adequate early

diagnosis, and facilitate research.

C. Provision for long term hospitalization and rehabilitation of this long neglected group of ehronic siek.

I am very grateful to Dr. W. S. C. Copeman, O.B.E., M.D., F.R.C.P., medical secretary to the Empire Rheunatism Council, for making available considerable of the information in this report and for his helpful criticism.

REFERENCES

- United States Public Health Service: The Magnitude of the Chronic Disease Problem in the United States, National Health Survey, No. 6, 1935-36.
- DAVIDSON AND DUTHIE: Reports on the Chronic Rheumatic Diseases, Vol. 4, H. K. Lewis & Co. Ltd., London, 1938.
- HORDER, LORD: A Plan for National Action, H. K. Lewis & Co. Ltd., London, 1941.
 DAVIDSON, L. S. P.: A National Plan of Treatment for the Chronic Rheumatic Diseases, Glasgow Med. J., 23: 107, 1944.
- Department of Health for Scotland, Chronic Rheu-matic Diseases. The report of the Medical Ad-visory committee, 1945.

I see more hope for ourselves as doctors and for the people who will come under our care, in the future of Medicine than perhaps in any other single thing in the new world towards which we are hacking our way. We at least have not-yet-forfeited the trust of people for whom we work; we at least have not-yet-turned inwards in despair, bartering our spirit of adventure for a mere hope of security. We stand for sane knowledge, selflessness, and mercy in a world gone mad. We cannot let these people down who trust our profession, and it is in this firm resolve that we shall face the future of Medicine .- Lord Horder, The Lancet, p. 458. April 5, 1947.

CLINICAL and LABORATORY NOTES

REGULATIONS FOR THE USE OF SHORT-WAVE DIATHERMY EQUIPMENT

If you employ short-wave diathermy in your practice, the law on the suppression of radio interference is of vital importance to you. Briefly stated, you are required to suppress the radiation from short-wave diathermy machines effective January 1, 1948. Most therapeutic radio-frequency generators now in use, because of inherent frequency instability, will not be permitted to operate after January 1, 1948. without being adequately shielded. The Canadian Broadcasting Act. 1936, included a section for the control of radio interference, and regulations were subsequently made under this Section in February, 1941. Owing to the shortage of material during the war, it was considered impracticable to enforce these Regulations with regard to short-wave diathermy equipment. As material is now available, and the interference is becoming more and more critical, all interference of this type must be

Radiation from electro-medical apparatus including tube-type diathermy and short-wave machines occurs in two ways: (a) into space in all directions and for great distances, and (b) along power transmission lines. This radiation of energy is causing serious interference to radio communication as the radiations are transmitted on frequencies allotted to radio aids to navigation, aviation communication and control systems, etc. It will readily be appreciated that interference of this type is far more serious than extraneous noises on your favourite radio program, as it is capable of pro-

By agreement between the Department of Transport in Canada and the Federal Communications Commission in the United States. three radio frequencies have been allotted to non-communication radio frequency generators. which include electro-medical equipment, and manufacturers are now producing short-wave diathermy machines which maintain their allotted frequency within the limits proposed.

ducing hazards to life.

As the responsibility for suppressing the interference lies with the user of the apparatus. two courses of action appear to be open to doctors who employ electro-medical equipment. These consist of (a) replacing existing equipment with new frequency-controlled units: or (b) providing adequate shielding for existing equipment. Either of these alternatives will subject the user to considerable expense, in the first case for the purchase of new equipment. or in the latter instance in providing a completely shielded room, booth or eubicle, as well as a surge trap or filter for the power lines.

Full technical details of the requirements have been incorporated in the following memoranda issued by the Department of Transport, Radio Division: SII-13-25 dated December 11, 1941; SII-13-28 and SII-10-39 dated October 19, 1946.

Advice, testing and inspection services are available to users of electro-medical equipment by consulting the local representatives of the Radio Division of the Department of Transport listed below.

It is important that you prepare to comply with the regulations which will become effective in less than one year. Investigate the possibility of adapting your present equipment so that interference is actually suppressed and, if you are considering the purchase of new equipment, be sure that it complies with the new requirements.

The Controller of Radio, Department of

Transport, Ottawa.

The District Superintendent of Radio, Department of Transport, 413-418 Belmont Building, Victoria, B.C.

The Supervising Radio Inspector, Department of Transport, 539 Public Building, Winnipeg,

Man.

The Supervising Radio Inspector, Department of Transport, 566 Dominion Public Building, Toronto, Ont.

The Supervising Radio Inspector, Department of Transport, 404 Public Building, Calgary, Alta.

The Supervising Radio Inspector, Department of Transport, 400-401 Public Building, Regina, Sask.

The Supervising Radio Inspector, Department of Transport, 400 Youville Place, Montreal, Que.

The District Superintendent of Radio, Department of Transport, P.O. Box 217, Halifax, N.S.

Danger in the Kitchen

The Statistical Bulletin of the Metropolitan Life Insurance Company estimates from studies among Metropolitan industrial policyholders and among other groups that about 6,000 persons are killed annually in the United States from mishaps in the kitchen and that many times that number are injured more or less seriously, though not fatally. In no other room in the house does such a concentration of hazards The most frequent type of fatal accident in the kitchen is burns and scalds. Falls, which rank second, are said to be responsible for about 1,500 deaths in kitchens annually. Among the hazards contributing to these falls are wet or waxed floors, worn linoleum or other floor coverings, unanchored small rugs, pails or other objects left on the floor; falls from tables, ladders, windows, chairs and highchairs. poisoning is a relatively frequent cause of accidents in the kitchen, more particularly among men who doze off while heating eoffec or other fluids which boil over and put out the gas flame.

Trouble may arise from a defective pilot light which is out or is not functioning; gas jets may be turned on unknowingly by persons brushing against them; some people may turn on the gas and forget to light it. Other contributing conditions to such deaths are burning gas with an excessively high flame in a poorly ventilated kitchen, improperly installed heaters and gas appliances in poor repair. Fatalities in the kitchen are also caused not infrequently by such poison compounds as roach powders or rat poisoning carclessly kept and mistakenly used for flour or baking powder. The modern kitchen is a combination bakery, cannery, laundry, restaurant, factory and butcher shop and play-In industry, where similar hazards exist, either state officials or trained employees help to control accidents, but in the home this responsibility usually falls on the woman of the house, who should know where the chief dangers lie.—A condensation in J. Am. M. Ass., 133: 1295, 1947.

Comprehensive Medical Care

"But what is comprehensive care? The term has been much used by the public, by politicians, by social reformers, as well as by some physicians, but it is doubtful whether it means the same to all who use it. Perhaps a simple definition is the best. Comprehensive medical care should make available all that modern medical science can offer toward the preservation of health and prevention and cure of disease. Naturally it includes appropriate use for adults as well as for children of all procedures for immunization. It implies measures for preventing the spread of infectious diseases, not only of the contagions of childhood, but also to tuberculosis, where the responsibility involves both ease finding and case supervision, and to veneral disease, where care does not stop with diagnosis and treatment of individuals, but extends to the discovery and management of those who have been exposed. Provision of comprehensive medical care implies frequent contact between physi-Health supervision should cian and patient. start at conception, and should extend throughout the entire life of an individual. records compiled jointly by parents, physicians, and patients should be kept for every individual, and should include not only the occurrence of disease, injuries, and operations, but also the time of all immunizations, of specific treatments. as well as of examinations, x-rays, and laboratory procedures. Access to the physician should be easy and unobstructed. It should not depend alone upon the accident of illness. Examinations should be sufficiently frequent and searching to permit early recognition of physical and psychological abnormalities. Comprehensive medical care cannot draw a line between diseases of the body and diseases of the mind, but must take full cognizance of the problems involved in preventing and treating both physical disease and emotional maladjustments."—D. P. Barr. The Diplomate, March, 1947.

THE CANADIAN MEDICAL ASSOCIATION Editorial Offices—3640 University Street, Montreal

(Information regarding contributions and advertising will be found on the second page following the reading material.)

EDITORIAL

THE SHORTAGE OF NURSES

FOR some time past the problem of the shortage of nurses has been under consideration by a joint committee of the Canadian Nurses Association, the Canadian Hospital Council and the Canadian Medical Association. That this shortage exists is of course common knowledge, but the main reasons for it may not be so well known, nor that the situation is steadily becoming worse.

Supply and demand in nursing depend on many factors. The output of graduate nurses from Canadian schools increased to the extent of about 45% during the period 1939-45, an achievement which must be accorded high praise when the conditions of those years are realized. But in that period the demand for nursing services increased to an extent out of all proportion to the supply, though the increase is not to be expressed by a percentage, and in the last two years the demand has become even greater. At present there are 169 Canadian hospitals with schools of nursing, but even if they were all occupied continuously to their fullest capacity—and that does not obtain—they still would not meet the demand. The shortage then is not because the schools are training fewer nurses. The following tabulation shows the various activities which absorb the supply of trained nurses.

- (a) Bedside nursing in civilian hospitals;
- (b) Administrative nursing positions in civilian hospitals;
- (c) Teaching and Supervisory positions in civilian hospitals;
- (d) Nursing in Department of Veterans' Affairs hospitals;
- (e) Executive nursing positions in various organizations;
 - (f) Private duty nursing in hospitals:
 - (g) Private duty nursing in homes;
- (h) Graduate nurses in industry;
 (i) Public Health nursing for public and private agencies;
 - (1) Air Stewardesses:

(k) Nursing in Doctors' and Dentists' offices.

It may be said of course that in some respects these activities are only details of what in effect is nursing care for the people generally. The Department of Veterans' Affairs, for example, constitutes a very large employer of nurses. In the immediate post war period D.V.A. employed about 2,000 nurses. That was the peak number, and there has been some recession, but there still are about 1,700 so employed, and they devote themselves to only a section of the population.

The expanding field of public health forms perhaps one of the greatest single demands on the supply of nurses, and this demand, great as it is, has not been nearly satisfied.

Yet other increasing demands come from industry, less perhaps than in the other two instances, but still of considerable extent and likely to grow.

Then there is the growth of hospitalization plans and the resultant increase in nursing due to the greater number of hospital admissions. But when these more obviouelements in the drain on the supply of nur-eare taken into account there is still another less well defined but perhaps even more important factor to be considered. This. in a word, is the rising tempo of the work of nursing itself. All hospitals nowadays show a greater turn-over of patients annually than. say, even ten years ago. Surgical patients especially spend less time in hospital, so that there is a tendency for the wards to contain only acute cases demanding the maximum of nursing. Add to this the constant expansion in serious operative procedures, requiring expert and continual nursing, and on the surgical side alone the pressure on the nursing staff is indescribably heavier and much more sustained than in previous years. On the medical side, whilst there may not be quite the same tendency to more rapid turn-over the nurse still has to carry out more skilled technical procedures both in treatment and diagnosis than before.

The net result of all this is the necessity for shorter hours of nursing and so for a greater number of nurses for the work. One further point in illustration of the complexity of the problem is the effect on the work of nursing of the fluctuation in the supply of maids, orderlies, etc. in hospitals. Perhaps "fluctuation" may be regarded by hospital superintendents as an unnecessary euphemism for an exceedingly unsatisfactory situation. At any rate, this class of workers is essential and when the supply fails a severe additional strain is thrown on the nurses. It is even possible that nursing is becoming so strenuous as to repel rather than attract candidates for the profession. It is not possible to say yet whether this process has already begun.

These are some of the reasons why there are not enough nurses to go round nowadays. The Joint Committee in its effort to solve the problem has made certain suggestions which require close study. The underlying idea is that a class or classes of nursing personnel other than registered nurses be created. These workers would be subsidiaries in the nursing field, and would not be given as long a period of training as those qualifying as registered nurses. Some might be taught enough in say six months to enable them to carry on an appreciable proportion of what is now done by the registered nurse. Others might be given a slightly longer course, with still higher qualifications, but in the case of both types the amount of time required for training would be so much shorter than that required for the fully trained registered nurse that more workers could be obtained in a short time. Naturally there is no suggestion that these subsidiary workers should replace registered nurses. The necessity for these in special nursing is fully established. At the same time opinions have been expressed by medical men that the content of the course of training might be made more practical and less theoretical. Some time in the course might be saved in this respect. We understand that this point receives full attention by the Canadian Nurses Association.

The value of such subsidiary workers would be definite. They would not only relieve the demand on registered nurses for the simpler duties of nursing, but could be employed for home care of patients at a lower cost. It has even been suggested as an idea worthy of exploration that the larger part of the present nursing curriculum be transferred to the University, leaving the

hospital more freedom in the teaching of the trained attendant type. At the same time provision might be made for advancing those in this class to a higher status with further training and experience.

Whatever is done in the way of creating these aides or subsidiaries should be recognized as a temporary expedient only, for the relief of the present emergency. There have been periods, not so long past, when registered nurses have not had sufficient employment, and care must be taken not to have an excess of workers in the field.

In any case there should be due recognition of the importance of the problem and an understanding of the sincere attempts at solution by the Canadian Nurses Association. It is closely bound up with all future hospital expansion and the provision of adequate nursing service to the country as a whole.

EDITORIAL COMMENTS

A New Course in Hospital Administration

The need for a postgraduate course in hospital administration to train hospital administrators who will serve in the larger hospitals across the Dominion has been realized for some years, but no action was possible during the war.

The University of Toronto now announces a postgraduate course in hospital administration for graduates in medicine and other university graduates who have acceptable qualifications. The course extends over a period of twenty-one months, of which period nine months will be used in providing formal instruction and twelve months will be spent as an intern in hospital administration under the supervision of the Department of Hospital Administration. To make possible this course there has been established a Department of Hospital Administration in the School of Hygiene.

Dr. G. Harvey Agnew, who is Executive Secretary of the Canadian Hospital Council and internationally known as a leader in hospital administration, has been appointed Professor of Hospital Administration (part-time) and will head this new Department. The Canadian Hospital Council has permitted Dr. Agnew to give the necessary time to the development of this course realizing the very great importance of this new provision for training. Dr. Agnew will continue his duties with the Council. Instruction will be given by departments of the University in the various fields related to the work of the hospital administrator and specialized fields of hospital administration will be presented by members of the staffs of leading hosThe first course will commence on

September 22, 1947.

The University of Toronto has received generous assistance from the W. K. Kellogg Foundation in establishing this postgraduate course. The Kellogg Foundation has taken a leading part in the development of similar courses in several universities in the United States. Funds have been made available also by the Kellogg Foundation to the University to permit of awarding scholarships during the first year of the course to special candidates. This course will be the first in Canada provided by any university for the training of hospital administrators, leading to a Diploma in Hospital Administration. The introduction of this course will afford Canadians the opportunity of receiving the essential basic training required in this field.

The School of Hygiene was established in 1924 through the munificence of The Rocketeller Foundation and now provides a series of courses in the various branches of public health. elose relationship which exists in every community between the public health authorities and the local hospitals now necessitates the inclusion of public health as one of the essential subjects in the training of hospital administrators. Both in the United States and in Great Britain courses of instruction in hospital administration are now being provided through schools of hygiene in various universities.

Necessity for Prescriptions

We have been asked to draw attention to the following orders in council regarding the prescription of the drugs therein referred to:

Except on individual prescription by a duly qualified physician, dentist or veterinary surgeon no person shall sell to the general public for internal or external use by man or animal any drug named or included in the following list or any preparation containing any of

Aminopyrin, its salts and derivatives:

Barbituric acid, its compounds and derivatives:

Beta-amino-propylbenzene (alpha-methyl-phenethylamine, benzylmethyl-carbinamine, racemic desoxynor-ephedrine) and its salts including isomyn and amphetamine, benzedrine, and their salts;

Cinchophen and Neocinchophen;

Dilantin Sodium (sodium 5, 5-diphenyl-hydantoinate, sodium 2, 4-diketo 5, 5-diphenyl-tetra-hydroglyoxaline, the mono-sodium salt of 5, 5-diphenyl-hydan-

Ortho-dinitrophenol, its compounds, homologues and derivatives;

Snlfanilamide (para-amino-benzene-sulfonamide), its salts and derivatives;

Sulfapyridine, Sulfathiazole and their salts; Thyroid, Thyroxin and its salts.

To which list has been added by a later orderin-eouneil:

Streptomycin and compounds thereof; Penicillin and its salts, other than penicillin and its salts for oral use which contain not more than 3,000 International Units per dose.

Apparently in some instances it is not realized that the drugs mentioned eannot be supplied by druggists except on written authorized preseription. Consequently it sometimes happens that patients are told simply to go to the drugstore for them, and the druggist has to get in touch with the doctor or send the patient back. In case of dispute the burden of explaining the law falls on the druggist.

ASSOCIATION NOTES

SEVENTY-EIGHTH ANNUAL MEETING of the

Canadian Medical Association

TO BE HELD IN THE ROYAL ALEXANDRA HOTEL, WINNIPEG JUNE 23, 24, 25, 26, 27, 1947

SCIENTIFIC PROGRAM Wednesday, June 25 ROUND TABLE CONFERENCES

9.00 - 10.30 a.m.

Anæsthesia

Anasthesia for the Occasional Anasthetist. Subject:

Chairman: Dr. D. C. Aikenhead, Winnipeg. Dr. Walter S. Johns, Calgary. Dr. J. Brener, Winnipeg.

Dr. D. Huggins, Winnipeg. Dr. D. Revell. Winnipeg. Dr. E. Watts, Edmonton.

Dermatology

Subject: Seborrhæic Dermatitis.

Chairman: Dr. Norman Wrong, Toronto.

Dr. Paul O'Leary, Rochester. Dr. A. M. Davidson, Winnipeg. Dr. Harold Orr, Edmonton.

Dr. D. E. H. Cleveland, Vancouver.

Dr. G. S. Williamson, Ottawa.

Medicine and Surgery

Subject: The Management of Hypertension.

Dr. J. D. Adamson, Winnipeg and Dr. A. C. Abbott, Winnipeg. Chairmen:

Dr. L. DeWitt Wilcox, London. Dr. Donald McEachern, Montreal. Dr. K. G. McKenzie, Toronto.

Wednesday, June 25-Continued

Obstetrics and Gynæcology

Cæsarean Section-the indications and Subject: contraindications.

Chairman: Dr. W. P. Tew, London.
Dr. G. M. White, Saint John.
Dr. A. B. Nash, Victoria. Dr. F. G. McGuinness, Winnipeg. Dr. L. T. Armstrong, Toronto. Dr. J. S. Henry, Montreal.

Ophthalmology

Ocular Injuries. Subject:

Chairman: Dr. N. L. Elvin, Winnipeg.

Dr. J. T. Cruise, Winnipeg. Dr. E. A. McCusker, Regina, Dr. R. O. McDiarmid, Brandon. Dr. E. L. Moyer, Moose Jaw.

Pædiatrics and Otolaryngology

Subject: The Management of Bulbar Poliomyelitis.

Chairman: Dr. Harry Medovy, Winnipeg.
Dr. E. J. Huenekens, Minneapolis.
Dr. R. E. Priest, Minneapolis.
Dr. A. B. Baker, Minneapolis. Dr. Alan Ross, Montreal. Dr. Robert Black, Winnipeg.

Psychiatry

Subject:

Treatment in D.V.A. Hospitals-Rehabilitation of Psychiatric cases, including experience with subshock, insulin, indications, mode of action, results, etc.

Chairman: Dr. W. M. Musgrove, Winnipeg. Dr. T. E. Dancey, Montreal. Dr. Gordon Hutton, Vancouver.

Radiology

Subject:

Roentgen Therapy in the Treatment of Arthritis.

Chairman: Dr. J. C. McMillan, Winnipeg.
Dr. W. T. Dingle, Winnipeg.
Dr. H. W. Riley, Winnipeg.
Dr. G. H. Ryan, Winnipeg.

GENERAL SESSION Wednesday, June 25

10.45 a.m.

Valedictory Address.

Dr. Wallace Wilson, Vancouver.

The Osler Lecture-Osler: The Textbook and Education in Medicine.

Prof. J. M. McMichael, London.

The Early Diagnosis of Carcinoma of the Stomach. Dr. Leo G. Rigler. Minneapolis.

SECTIONAL MEETINGS

Wednesday, June 25

2.15 p.m.

Section of Anæsthesia

Combined Anæsthesia.

Dr. R. Letienne, Winnipeg.

Anasthesia in Chest Surgery.

Dr. J. A. Blezard, London.

Regional Anasthesia.

Dr. John Carroll, Montreal.

Pentothal Anasthesia.

Dr. Fernando Hudon, Quebec.

Wednesday, June 25—Continued Section of Dermatology

Treatment of Malignant Skin Tumours. Dr. George Brock, Winnipeg.

The Xanthomatoses.

Dr. Paul O'Leary, Rochester.

Recent Advances in Dermatology.

Dr. Harold Orr, Edmonton.

Manifestations of Skin Sensitivity. Dr. G. S. Williamson, Ottawa.

Skin Lesions of Functional Nervous Disease. Dr. D. E. H. Cleveland, Vancouver.

Section of Medicine

- Obscure Causes of Heart Failure.

Dr. Gerard Allison, Winnipeg.

Diagnosis in Arthritis and Rheumatism.

Dr. Douglas Taylor, Toronto.

Immunization Procedures in Acute Infections.

Dr. R. D. Defries, Toronto.

Minor Ailments.

Dr. Charles Hunter, Winnipeg.

Section of Ophthalmology

Tributary Retinal Tenous Thrombosis. Dr. Robert M. Ramsay, Winnipeg.

The Newer Types of Implants used after Enucleation. Dr. J. S. Crawford, Toronto.

The Diagnosis of Toxoplasmic Chorioretinitis. . Dr. Kenneth B. Johnston, Montreal.

Tertical Deviations.

Dr. James McGillivray, Winnipeg.

Section of Pædiatrics

Congenital Heart Disease.

- (a) Diagnosis-Dr. John Keith, Toronto.
- (b) Surgical Approach-Dr. Gordon Murray. Toronto.

Subdural Hæmaioma in Infants.

- (a) Etiology and Diagnosis-ur. Taylor Statten, Toronto.
- (b) Surgical Approach-Dr. Arthur Elvidge, Montreal.

Electro Encephalography in Padiatrics.

Dr. Harold Rice, Winnipeg.

Section of Radiology

The Value of Plain Abdominal Roentgenograms.

Dr. F. G. Stuart, Winnipeg.

Radiation Treatment of Carcinoma of the Corpus Uteri. Dr. Ethlyn Trapp, Vancouver.

The Treatment of Angiomas.

Dr. Origene Dufresne, Montreal.

Calcification in the Ascending Aorta as a Roentgen Sign of Luetic Aortitis.

Dr. R. A. MacPherson, Winnipeg.

Wednesday, June 25—Continued

Section of Surgery

A Follow-up of the Treatment of Intervertebral Discs. Dr. H. P. Cameron, Winnipeg.

Strictures of the Common Duct.

Dr. Warren H. Cole, Chicago.

Results of Surgical Treatment of Bronchiectasis.

Dr. F. G. Kergin, Toronto.

Intertrochanteric Fractures of the Femur, treated by Skeletal Fixation.

Dr. J. R. Naden, Vancouver.

Thursday, June 26

ROUND TABLE CONFERENCES

9.00-10.30 a.m.

Anæsthesia

Anasthesia for Chest Surgery. Subject:

Chairman: Dr. A. C. Rumball, Winnipeg. Dr. J. D. Cameron, Toronto.

Dr. Marjorie Bennett, Winnipeg.

Dr. F. Walton, Winnipeg.

Dr. J. M. McKinnon, Winnipeg.

Dermatology

Subject: Furunculosis.

Chairman: Dr. A. R. Birt, Winnipeg. Dr. K. A. Baird, Saint John. Dr. Lennox G. Bell, Winnipeg.

Dr. B. Brachman, Regina. Dr. Fred Cadham, Winnipeg.

Dr. J. W. R. Rennie, Winnipeg.

Medicine, Obstetrics and Gynæcology

Endocrine Problems of Gynxcology and

Obstretrics.

Chairman: Dr. J. S. Henry, Montreal.

Dr. Willard Holmes, Saskatoon.

Dr. A. B. Nash, Victoria.

Dr. L. T. Armstrong, Toronto.

Otolaryngology

Chronic Otitis Media and Mastoiditis. Subject:

Chairman: Dr. Robert Black, Winnipeg.

Dr. Frank Macneil, Winnipeg. Dr. T. J. Haughton, Regina.

Dr. G. M. T. Hazen, Saskatoon. Dr. E. J. Washington, Winnipeg.

Dr. I. H. Beckman, Winnipeg.

Psychiatry

Subject: Child Psychiatry.

Chairman: Dr. T. Alex Pincock, Winnipeg.

Dr. G. M. Stephens, Winnipeg.

Dr. Brian Bird, Toronto.

Dr. C. G. Stogdill, Ottawa.

Radiology

Cardio-vascular Roentgenology.

Chairman: Dr. H. M. Edmison, Winnipeg.

Dr. A. E. Childe, Winnipeg.
Dr. L. R. Coke, Winnipeg.
Dr. F. A. L. Mathewson, Winnipeg.

Dr. Harry Medovy, Winnipeg.

Thursday, June 26—Continued

Surgery

Subject: Vascular Disorders of the Lower Extremities.

Chairman: Dr. C. E. Corrigan, Winnipeg.
Dr. H. D. Kitchen, Winnipeg.
Dr. R. O. Burrell, Winnipeg.
Dr. J. W. R. Rennie, Winnipeg.

Dr. John Farr, Winnipeg.

Urology

Subject: Anuria.

Chairman: Dr. H. D. Morse, Winnipeg. Dr. J. C. McClelland, Toronto.

Dr. Joseph Doupe, Winnipeg. Dr. D. Nicholson, Winnipeg.

GENERAL SESSION Thursday, June 26

10.45 a.m.

The Present Status of Penicillin in the Treatment of Syphilis.

Dr. Paul O'Leary, Rochester.

Intestinal Obstruction.

Dr. Warren H. Cole, Chicago,

Psychotherapy in Medical Practice.

Dr. C. B. Farrar, Toronto.

SECTIONAL MEETINGS

Thursday, June 26

2.15 p.m.

Section of Anæsthesia

Anasthesia in Major Abdominal Surgery; a comparative study of continuous spinal and cyclopropane with curare.

Dr. Dorothea M. Wardrop, Winnipeg.

Oxygen Saturation of the Blood in Several Types of Anæsthesia.

Dr. Stanley Campbell and

Dr. D. M. Bean, Toronto.

Anæsthesia for Ophthalmic Surgery.

Dr. E. H. Watts, Edmonton.

Hypobaric Pontocaine Spinal Anasthesia for Exploration for Extruded Nucleus Pulposus.

Dr. Peere C. Lund, Winnipeg.

Armed Forces Medical Section

The Field Surgical Unit.

Dr. J. A. B. Hillsman, Winnipeg.

Recent Advances in Aviation Medicine.

Dr. W. R. Franks, Toronto.

The Medical Aspects of Civil Defence.

Dr. O. M. Solandt, Ottawa.

Section of Medicine

The Rôle of Proteins in Management of Diabetes.

Dr. A. Hollenberg, Winnipeg.

The Treatment of Peptic Ulcer.

Dr. A. H. Gordon, Montreal.

Epilepsy, Tridione and results.

Dr. C. A. Gauthier, Quebec. Enigmatic Anamias.

Dr. William Magner, Toronto.

Thursday, June 26—Continued

Section of Obstetrics and Gynæcology

Diabetes in Pregnancy.

Dr. W. P. Tew, London.

The Differential Diagnosis of Chronic Lower Abdominal Pain in the Adult Female.

Dr. Brian D. Best, Winnipeg.

Prolapse.

Dr. L. T. Armstrong, Toronto.

Blood Loss in Labour.

Dr. George White, Saint John.

Section of Otolaryngology

Epistaxis.

Dr. J. K. M. Dickie, Ottawa.

The Clinical Application of Penicillin in Otolaryngology.

Dr. Keith Hutchison, Montreal.

Ménière's Disease, Diagnosis and Treatment.

Dr. P. E. Ireland, Toronto.

Synoptic History of a Series of Interesting Laryngeal and Esophageal Cases.

Dr. E. J. Washington, Winnipeg.

Section of Radiology

Myelography-some Technical Considerations.

Dr. Harold Morison, Winnipeg.

Emphysema: An Early Sign of Bronchogenic Carcinoma.

Dr. Leo G. Rigler, Minneapolis.

The Relationship of Radiological Diagnosis to Radio-therapy in the Treatment of Caroinoma of the

Dr. W. A. Jones, Kingston.

Roentgen Therapy in Carcinoma of the Vulva. .

Dr. Jean Bouchard and

Dr. Carleton B. Peirce. Montreal.

Pneumoarthrography of the Knee Joint.

Dr. Paul P. Hauch, London.

Section of Surgery

Carcinoma of the Left Colon.

Dr. Donald Campbell, Hamilton.

Early Diagnosis of Subdiaphragmatic' Abscess by Artificial Pneumoperitoneum.

Dr. A. L. Wilkie, Montreal.

Spontaneous Uterinc Rupture.

Dr. Christophe Bisson, Montreal.

Dupuytrer's Contracture: Review of 100 Operations.

Dr. Robert G. Langston, Vancouver.

Section of Urology

Essential Hæmaturia.

Dr. D. R. Mitchell, Toronto.

Renal Cysts.

Dr. R. E. Rowell, Montreal.

Sarcoma of the Kidney.

Dr. L. G. Wood, Vancouver.

Wilms' Tumours (review of cases).

Dr. Gordon Ellis, Edmonton.

Friday, June 27

ROUND TABLE CONFERENCES

9.00-10.30 a.m.

Dermatology

Ringworm of the Scalp. Subject:

Chairman: Dr. A. M. Davidson, Winnipeg.

Dr. Arthur Birt, Winnipeg. Dr. Geo. Williamson, Ottawa.

Dr. Harold Orr, Edmonton.

Dr. Norman Wrong, Toronto. Dr. D. E. H. Cleveland, Vancouver.

Medicine

Subject: The Management of Peptic Ulcer.

Chairman: Dr. J. Wendell Macleod, Winnipeg.

Dr. Malcolm Brown, Kingston. Dr. R. F. Farquharson, Toronto. Dr. M. B. Perrin, Winnipeg.

Dr. C. C. Ross, London.

Dr. P. H. T. Thorlakson, Winnipeg. Dr. J. H. Geddes, London. Dr. R. M. MacDonald, Boston.

Obstetrics and Pædiatrics

Subject: The Rh Factor in Obstetrics and Pædiatrics.

Chairman: Dr. Bruce Chown, Winnipeg.

Dr. Ronald Denton, Montreal. Dr. Ross Vant, Edmonton. Dr. Gordon Coghlin, Winnipeg.

Psychiatry

Subject: Electro Encephalography in Psychiatry.

Chairman: Dr. G. L. Adamson, Winnipeg.

Dr. John Kershman, Montreal. Dr. Harold V. Rice, Winnipeg. Dr. L. D. Proctor, Toronto.

Surgery

Management of Intestinal Obstruction. Subject:

Chairman: Dr. M. R. MacCharles, Winnipeg.

Dr. J. C. Armour, Montreal. Dr. A. D. McLachlin, London. Dr. R. A. Macpherson, Winnipeg.

Urology

The Rôle of Antibiotics and Chemotherapy Subject:

in Urology.

Chairman: Dr. J. C. McClelland, Toronto.

Dr. D. R. Mitchell, Toronto. Dr. C. M. Spooner, Toronto.

Dr. D. Swartz, Winnipeg.

GENERAL SESSION

Friday, June 27

10.45 a.m.

Medical Implications of Recent Developments in Atomic Physics.

Dr. A. Cipriani, Chalk River.

Pre- and Post-operative Management of Gastrointestinal Cases.

Dr. Roscoe R. Graham, Toronto.

Some Practical Aspects of Recent Advances in Obstetrics and Gynxcology.
Dr. A. B. Nash, Victoria.

SECTIONAL MEETINGS

Friday, June 27

2.15 p.m.

Armed Forces Medical Section

Glimpses of the R.C.A.M.C. in Action. Dr. Athol Gordon, Winnipeg.

The Sequelx of Local Exposure to Cold.

Dr. D. R. Webster, Montreal.

Operation Crossroads (The Bikini Experiment).

Major General R. M. Luton, Ottawa.

Section of Historical Medicine

Milestones in Canadian Medicine.

Dr. Heber Jamieson, Edmonton.

Doctor C. E. Smythe, Pioneer Physician of Medicine Hat. Dr. G. D. Stanley, Calgary.

A Boy's Eye View of the Doctors He knew, 1889 to 1896 Dr. M. H. V. Cameron, Toronto.

Jeanne Mance.

Dr.-H. E. MacDermot, Montreal.

Bucke's Travels.

Dr. Edwin Seaborn, London.

Section of Industrial Medicine

Workmen's Compensation.

Dr. D. J. Fraser, Winnipeg.

Accident Proneness.

Dr. G. E. Hobbs, London.

Organization and Experience of a Large Industrial Medical Department.

Dr. K. E. Dowd, Montreal.

Diagnosis and Management of Silicosis.

Dr. William Taylor, Timmins.

Section of Medicine

Symposium—Recent Advances in Therapeutics. Chairman and leader of discussion—

Dr. Ray Farquharson, Toronto.

Antibiotics—Dr. S. R. Townsend, Montreal. Thiouracil—Dr. John M. Kilgour, Winnipeg. Anticoagulants—Dr. E. S. Mills, Montreal. Anti-histamine and Related Substances—

Dr. C. H. A. Walton, Winnipeg.

Folic Acid—Dr. Ray Farquharson, Toronto. Nitrogen Mustards, B.A.L., etc.—

Dr. Athol Gordon, Winnipeg.

Section of Obstetrics and Gynæcology

Conduct of Trial of Labour.

Dr. A. W. Andison, Winnipeg.

Malignancy of the Vulva.

Dr. J. A. Brown, Regina.

The Management of Dysmenorrhaa.

Dr. J. O. Baker, Edmonton.

Friday, June 27-Continued

Section of Pædiatrics

Collac Disease.

Dr. F. W. Wiglesworth, Montreal.

Milk Allergy.

Dr. R. C. Browne, Fort William.

Infantile Diarrhaa.

Dr. Murray McLandress, Winnipeg and

Dr. Maurice Berger, Winnipeg.

Section of Psychiatry

Functional Disorders of the Gastro-Intestinal System.

Dr. J. Wendell Macleod, Winnipeg.

Somatic Symptoms in the Psychoses.

Dr. Edward Johnson, Selkirk.

The Treatment of Psychosomatic Disorders.

Dr. Trevor Owen, Toronto.

Mental Hygiene Related to Psychosomatic Disorders.

Dr. George H. Stevenson, London.

Section of Surgery

Repair of Bony Defects of the Face and Jaws.

Dr. E. W. Pickard, Winnipeg.

Present Day Treatment of Hyperthyroidism.

Dr. Walter MacKenzie, Edmonton.

The Treatment of Perforated Peptic Ulcer.

Dr. D. L. C. Bingham, Kingston.

The Present Status of Vagus Section in Ulceration of the Stomach and Duodenum.

Dr. E. Bruce Tovee, Chicago.

Section of Urology

Treteritis.

Dr. Earl Hall, Vancouver.

Repair of Postoperative Urinary Fistula of Unusual

Dr. Hilton S. Good, Regina.

The Urologist and the General Practitioner.

Dr. W. P. Hogarth, Fort William.

Directicula of the Bladder with case reports.

Dr. N. B. Berry, Kingston.

Consideration of Infected Bilateral Renal Calculi.

Dr. Albert G. Laroche, St. Hyacinthe.

Special Exhibit Department of Veterans' Affairs

The Department of Veterans' Affairs have made arrangements to have both fixed and special scientific exhibits to be on display June 24. 25 and 26 at the Deer Lodge Hospital. Special exhibits will be at stated hours which will be announced later. Included in these exhibits will be Dermatology, Tropical Diseases. Parasitology, Orthopædic Cases. Paraplegic Cases and Rehabilitation Exercises.

Special arrangements will be made for transportation from the Convention Headquarters to

the Hospital.

The Monitoba Division

The Manitoba Division will hold its annual business meeting on Tuesday afternoon, June 24,

Conodian Cancer Society

The Grand Council of the Canadian Cancer Society will meet in the Royal Alexandra Hotel, Winnipeg, on Saturday, Sunday and Monday, June 21, 22 and 23, commencing at 9.30 a.m.

Royal College of Physicions and Surgeons of Canada

The Royal College of Physicians and Surgeons of Canada will hold the following meetings in the Royal Alexandra Hotel, Winnipeg:

Monday, June 23

11.00 a.m.—Meeting of the Executive Committee.

Tuesdoy, June 24

9.00 a.m.—Meeting of Council, continuing all day and during the evening.

The Canadian Society of Allergists

Tuesday, June 24

9.00 a.m.—Round Table Discussion—Asthma in Adults and Children.

Dr. H. K. Detweiler (President), Toronto.

Dr. A. T. Henderson, Montreal.

Dr. C. H. A. Walton, Winnipeg.

Dr. J. R. Ross, Toronto.

11.00 a.m.—Business Meeting.

2.00 p.m.—Scientific Session:

Bacterial Allergy.

Dr. K. A. Baird, Saint John.

Histamine.

Dr. Bram Rose, Montreal

Antihistamine Drugs.

Dr. A. T. Henderson, Montreal.

Bronchoscopy and Bronchial Asthma.

Dr. S. McEwen, Winnipeg.

The Use of Slowly Absorbed Pollen Extracts in the Treatment of Hay Fever in Children.

Dr. J. R. Ross, Toronto.

Periarteritis Nodosum.

Dr. I. H. Erb, Toronto.

The Canodion Anæsthetists' Society

The fifth Annual Meeting of the Canadian Anæsthetists' Society will be held on Wednesday, June 25. immediately after the session of the Section of Anæsthesia under whose auspices all scientific meetings are being held. The agenda will include the election of officers and a discussion of tariff, certification, postgraduate education and any new business presented by members. Following this, the annual reunion and dinner will be held from 5.30 to 8.30 o'clock. On Thursday, June 26, business meetings of the various Provincial Divisions will convene at 4.30 p.m.

Conodion Heort Association

An organization meeting of a Canadian Heart Association will be held on Tuesday afternoon. June 24, commencing at two o'clock. All cardiologists are urged to be present. Following the business session Dr. John McMichael. of London, England. will give an address on 'The Circulation in Arteriovenous Aneurysms'.

The Alberto University Medicol Alumni

The Alberta University Medical Alumni will hold a dinner at the Fort Garry Hotel, Winnipeg on Thursday. June 26, commencing at 6.30 p.m. All interested are invited.

The Conadion Medical Protective Association

The Canadiau Medical Protective Association will meet at 4.30 p.m. on Wednesday, June 25.

The Conadion Association of Radiologists

The Canadian Association of Radiologists will meet in the Royal Alexandra Hotel on the afternoon and evening of Tuesday. June 24.

The Federation of Medical Women of Canada

The Council of the Federation of Medical Women of Canada will meet on Tuesday evening, June 24. The Annual Meeting will take the form of a breakfast at 8.30 a.m. on Wednesday, June 25, at the Business and Professional Women's Club. 3 Evergreen Place. Following the breakfast there will be a business session.

The Canodion Urological Association

The Canadian Urological Association will meet on Thursday, June 26 at the conclusion of the afternoon session of the Section of Urology.

Registrors of the Colleges of Physicions ond Surgeons

The Registrars of the Colleges of Physicians and Surgeons of Canada will meet at 2.00 p.m. on Thursday, June 26.

The Canadian Orthopædic Association

L'Association Canadienne D'Orthopédie The third annual meeting of the Canadian Orthopædie Association will be held in the Royal Alexandra Hotel, Winnipeg, on Monday and Tuesday, June 23 and 24.

Monday, June 23

9.00 a.m.—Tranmatic Lesions of the Posterior Tarsus.

Dr. W. B. MacKinnon, Winnipeg. Fusion of the Ankle Joint.

Dr. J. A. Leo Walker, Montreal. Recurrent Subluxation of the Ankle. Dr. Geo. F. Pennal, Toronto.

Spondylolisthesis.

Dr. R. I. Harris, Toronto.

Giant Cell Tumour of the Sacrum. Dr. L. P. Roy, Quebee.

12.00 noon—Business Meeting—members only.2.00 p.m.—High Osteotomy in Femoral Neck Non-union.

Dr. R. G. Townsend, Calgary.

Observation on Methods of Pinning

Hips.

Dr. Beattie Martin, Regina.

Reduction and Fixation of Femoral Neek Fractures Under Fluoroseopic Control.

Dr. G. H. Rýan, Winnipeg.

Tuesday, June 24

9.00 a.m.—Fusion of the Wrist Joint.
Dr. A. A. Butler, Montreal.

A Case of Spondylitis of Proved Etiology Treated by Streptomyein.

Dr. Roger Gariepy, Montreal.

Repair of Shoulder Capsule Lesion. Dr. D. E. Starr, Vaneouver.

Late Results in Knee Arthroplasty. Dr. J. E. Samson, Montreal.

Bilateral Congenital Pseudoarthrosis of Clavieles.

Dr. J. C. Rossignol, Ottawa.

2.00 p.m.—Early and Late Treatment of Slipped Femoral Epiphysis. Dr. Antonio Samson, Montrea

Dr. Antonio Samson, Montreal, Dr. Leo Jarry, Montreal.

Stabilization of the Paralytic Foot. Dr. Ulric Frenette, Montreal.

Seapular Transplant in Abduetor Paralysis of the Shoulder.

Dr. J. E. Bateman, Toronto.

Patelleetomy.

Dr. H. M. Coleman, Toronto.

Ladies' Program for the Annual Meeting in Winnipeg

The following is the Ladies' Program for the 78th Annual Meeting of the Canadian Medical Association.

Tuesday, June 24

Manitoba Medical Association host to the Council of the Canadian Medical Association and their wives. Main dining room of the Royal Alexandra Hotel at 7.00 p.m.

Wednesday, June 25

8.00 p.m.—Ceremonial Meeting, Crystal Ballroom.

9.00 p.m.—Reception. Colonial Ballroom. 10.00 p.m.—Dancing, Crystal Ballroom.

Thursday, June 26

Tea-Motor Country Club, Lower Fort Garry, an historic spot well worth seeing. Scenie tour through Kildonan Park and return via the Red River Road.

Friday, June 27

Golf—Friendly games will be arranged for ladies attending the Convention. Should there be sufficient interest a tournament will take place on Friday morning, June 27.

3.00 p.m.—Afternoon Tea:

University Women's Club. the former home of the late Rev. Charles Gordon. (Ralph Connor) from 3.30 p.m. until 5.30 p.m.

Would all women doctors attending the Meeting of the C.M.A. please register at the Ladies' registration desk.

Health Insurance in British Columbia

[The following editorial from the "The Bulletin of the Vancouver Medical Association", clearly sets forth the position of the B.C. profession with regard to the failure of the Health Insurance Act in that Proxince.— Editor.]

The newspaper reports of the B.C. Legislature proceedings at the present session of the House, have contained certain exchanges between various members, including the Provincial Secretary, and the Secretary of Education, on the matter of Health Insurance: and there is enough inflammable material in these reports to rekindle at any time the whole matter of socialized medicine. At the same time, the events that are now transpiring in Saskatchewan with regard to the socialization of medicine, and the subjection of the medical profession of that province, do not tend to make us feel any more at ease.

The Secretary of Education for B.C. was attacked quite severely by various members of the C.C.F. party, when it was announced in the

House that the Health Insurance Commission which was established some years ago, when the Health Insurance Act was passed, and which has never functioned, had been finally dissolved. The C.C.F. speakers said in so many words that the medical profession was responsible for the fact that Health Insurance is not now in operation. One of them said that the medical profession should be compelled to obey the law. When he was challenged to place the blame where it belonged, Dr. Weir refused to do so, but implied that his challenger knew quite well why Health Insurance was defeated.

This, we take leave to say, is not good enough. Though he did not say so in so many words, we cannot but feel that Dr. Weir leaves the onus of the failure of the Health Insurance Act on our shoulders. This is not the case. We say flatly, and are quite prepared to give chapter and verse to defend our statement, that the medical profession is not to blame for the failure of the B.C. Government to bring in a fair and workable act. For two mortal years our representatives did their best to obtain an equitable and just response to their representations-and at the end of this two years, the Government through its negotiators had not yielded one inch, nor advanced in any particular from the position which they first assumed: a position which, if we had consented to it, would have made of the incdical profession a collection of second or third rate practitioners, working their heads off for a pittance that would have been far below the return to which they are entitled by the quality and amount of work they do: and would have reduced the standard of medical practice to a very low level. The public, which was supposed to be benefited by the institution of Health Insurance, would-have been the chief sufferers.

But the public has never been told the facts. On the contrary—we have sat supinely by and allowed the other side of the controversy to present its views unchallenged and uncontradicted by us. We cannot blame people who know the relief from the cost of sickness is necesary and urgent, and who know that it has not been secured, if they hold us responsible for the present impasse: if we do not tell them the truth. From personal experience, we know that when groups of working people and wageearners have been given the real facts of the case, they have accepted our explanation and been satisfied with it.

Let us make no mistake, however. The demand that medical service—good and complete medical service—be brought within the reach of all. is growing and must sooner or later be met. We know this as a profession—we agree with it-have said so again and again. certain conditions we insist must be met. One cannot buy a ten-dollar pair of shoes for five dollars: nor could even the government enforce such a transaction. Similarly, you cannot buy

good medical service—and no other will do for the price of rotten cheap work. We know what good medical service costs-and what each part of it costs—and if the Government. i.c., the people want it, they will have to meet the cost, whether by the adoption of a complete scheme or by a system of instalment. It is a business transaction, and every business transaction implies that both sides must be satisfied.

It is no good engaging in a campaign of abuse, and of ascribing the whole responsibility to the other fellow. If we are to get anywhere, we must, both parties must, put all their cards on the table and be prepared to talk business in a business-like way. Till then, as an organized profession, we cannot afford to surrender our position. There must be none of this asking us to try it for a year, as was done before: nor the suggestion of impracticable and unworthy subterfuges.

Moreover, we should be prepared, at all times. to justify our stand, in whatever action we may take—and to engage in whatever publicity may be necessary, to keep the public informed of all the facts—those stubborn things which were the real cause of the defeat, ten years ago, of an impossible Health Insurance Act-impossible because it did not meet the facts of the situation.

PRESIDENTIAL ADDRESS*

C.-A. Gauthier, M.D.

President, Quebec Division of the Canadian Medical Association

The honour associated with the presidency of the Quebec Division of the Canadian Medical Association is indeed great. It also gives real pleasure, when one remembers the quality of the C.M.A. constitution and by-laws, together with that of the procedure which is followed during its deliberations.

Nor is this presidency a task, much less a burden, when one knows how wise and couscientious are the members of the executive and the chairmen of its committees.

There is particular pleasure in the thought that under no circumstances whatever does the C.M.A. national executive ever infringe upon the division's prerogatives, but, on the contrary, leaves them complete power of decision.

It is also with a feeling of joy that one notes how jealously the division's executive sees to it that the field of action of the College of Physicians and Surgeons' executive power is not encroached upou.

Still another cause for rejoicing comes from the knowledge of a sincere desire for united and constructive teamwork with the Associa-

^{*} Delivered at the meeting of the Division, April 18, 1947.

tion des Médecins de Langue Française du Canada.

And a feeling of noble satisfaction arises from the study of the C.M.A. aims: its protection of the population's health and the protection of the doctor's rights.

Still greater satisfaction is there in the efforts of the Association to raise and maintain

professional standards.

And it is worth the purest satisfaction of all, both for the mind and the heart that we realize

the nobility of the medical profession.

As we conceive them these are indeed the duties and obligations of so-called organized medicine. They are entirely realized here. And, particularly in our Province, where conditions and problems have an aspect of duality if not an apparent complexity, we can state that the attainment of the aims of the C.M.A. is all to the honour of the foresightedness which was that of the founders of the Association; they who in 1867, in this very city, and at a stone's throw from where we actually are, laid the foundations of the C.M.A.

If the professional Associations have duties of their own, the physician too, as we may well imagine, has the obligation to support these Associations. So that it is with no small amount of satisfaction that we see in our Province close to 1.500 doctors members of this division

of the C.M.A.

One must infer that if the doctor knows that, as an individual, he has rights, he also knows that as a member of a group he has duties. And, in popular parlance we might say that 1,500 doctors can't be wrong in thus uniting themselves. Well then, might the others be wrong? Again, to use the vernacular, could that be the sixty-four dollar question?

In nominating a physician from Quebec for the coming term of the presidency, the Quebec Division of the C.M.A. has meant to pay tribute

to all the members from this City.

Deeply moved by that gesture, I wish to express my hearty thanks and to add that, feeling thus greatly honoured I desire to assure the members of this Association of my sustained efforts to the best of my ability.

& & &

L'honneur que comporte la présidence de la division de Québec de l'Association Médicale Canadienne est hien grand. Cette présidence proeure aussi un plaisir, quand on s'arrête à considérer la qualité de la constitution et des règlements de l'Association, et celle de la procédure suivic au cours des délibérations.

Elle n'est certes pas une tâche, encore moins un fardeau. eette présidence, quand on sait combien avertis et consciencieux sont les membres de l'exécutif, tout comme les présidents des comités a la ligne. Mais elle procure plutôt un sentiment de joie à la pensée que l'exécutif national, jamais et sur quelque question que ce soit, ne porte atteinte aux prérogatives des divisions provinciales, mais, au contraîre, leur remet leur entier pouvoir de décision.

C'est aussi une joie que l'on ressent en constatant combien jalousement l'exécutif de la division de Québec veille à ne pas enfreindre le champ d'action du pouvoir exécutif du Collège des Médecins et Chirurgiens de la Province de Québec.

C'est encore une joie que de sentir chez ce même exécutif, le désir sincère du travail uni et constructif avec l'Association des Médecins de Langue Française du Canada. G'est une noble satisfaction que nous procure l'étude.des buts de l'Association médicale Canadienne: la protection de la santé de la population, et la protection des droits du médecin. C'est encore avec une satisfaction plus profonde qu'on la voit s'efforcer de promouvoir le maintien et le rehaussement du standing professionnel. Et de constater combien son milieu est fortement ancrée l'idée de la noblesse de la médecine, est aussi de la nature des joies pures pour le cœur et l'esprit.

Nous le constatons, ce sont bien là les devoirs des Associations professionnelles; ils sont ici pleinement réalisés. Et cette réalisation des buts et devoirs de l'Association Médicale Canadienne, particulièrement en notre Province, où les conditions et les problèmes prennent un aspect de dualité, sinon de complexité apparente, cette réalisation est tout à l'honneur de la prévoyance des fondateurs, qui en 1867, en cette même Ville, s'étaient réunis à deux pas d'ici pour y fonder cette Association.

Si les Associations professionnelles ont des obligations, le médeein a aussi, nour le concevons, le devoir de soutenir ces associations. C'est donc aussi avec joie que l'on constate que, dans notre province, près de 1.500 médecins sont membres de la division de Québec de l'Association Médicale Canadienne. C'est que le médecin sait. que s'il a des droits comme individu, il sait aussi qu'il a aussi des devoirs eomme groupe. Et pour employer une paraphrase connue et célèbre, 1,500 médecins ne peuvent tous se tromper en s'unissant de la sortc. Et les autres, se trompcraient-ils? Nous pouvons tout de même nous poser la question.

La division de Québee a voulu honorer la ville de Québec en lui attribuant. dans la personne d'un de ses médeeins. la présidence pour le prochain terme. Sensible à ce geste, le récipiendaire ne peut faire autrement que de remercier, s'en déclarer très honoré, et assurer les membres de cette Association de son dévouement dans la mesure de son possible.

WELCOME TO WINNIPEG The Hospitals

Winnipeg doctors are well supplied with hospital facilities. Within the city or near it are many institutions furnished with all things necessary for the general and special care of the sick. They vary in size but all alike strive to exceed, rather than merely to meet, the requirements and standards of approved hospi-Some of them have the advantage of being teaching hospitals and almost without exception they have regular clinical meetings which, collectively, form a continuous postgraduate course for the local doctors. will have an opportunity of seeing several of these hospitals and you will find, even in the smallest, evidence of that completeness and efficiency which make the modern hospital so helpful to doctor and patient alike.

When Winnipeg was a small hamlet its medical needs were few, but as settlers poured in by their thousands the need for doctors and hospitals became urgent. First to meet the latter need was a group of four women who had arrived in the adjacent settlement of St. Boniface in 1844. These belonged to the Order of Grey Nuns of Montreal. The story of their journey and of the hardships they endured is one of the epics of the West. Their first hospital was their own home which still stands. Much of their work, however, was done in the homes of the sick, but they saw the need of a place where the sick could get more thorough care and this led them to erect a special building as a hospital. This, the first hospital, accommodated four patients and it still stands in the shadow of the imposing group of buildings which form the present St. Boniface Hospital.

From this humble beginning growth was rapid. New buildings, additions, wings, stories were added. Renovations and installations of new equipment were almost yearly events and so it has continued. But still there is a dearth of beds. The section used by the nurses was turned over to house more patients and a large nurses' home was built. A separate building was erected for the interns so that their quarters might be used for patients. In spite of this there is not enough accommodation for those who wish it. St. Boniface is a teaching hospital.

While the Grey Nuns were building their first small hospital a group of business men in Winnipeg set about laying plans for a hospital in the new city. They seemed a house which soon proved to be too small for their needs. For the next fifteen years the hospital was moved from site to site before the first of the present buildings was erected. Although Winnipeg was a frontier town there were among its doctors men of ability, training and experience as well as of vision. Some of these

had first hand experience with the revolutionary methods of Lister and all were his disciples. These kept the new hospital modern. Operating rooms, the most up-to-date of their kind, were added and attached to them was a special surgical wing for the better care of surgical For several years, Winnipeg was a cases. man's town. If hospital admissions can be taken as a guide there were ten men to one woman, but the ladies did not let the ratio so remain. It was not very long before there was a demand for a maternity wing and with the increase of patients of both sexes quarters had to be built to house the growing staff of nurses. The General Hospital grew with the city. Its close association with the Medical School both in space and in work kept the quality of its service at top level. It is the principal teaching hospital. In 1910 a Social Service Department was organized—the first of its kind in the Dominion. In 1919 a psychopathic ward was erected in the hospital grounds. In size it is second only to Deer Lodge Hospital.

Third in point of time as well as in size is the Miscricordia Hospital. This was founded in 1898 by a Montreal Order of Nuns-Les Sœnrs de Misericorde. Their work lay with unmarried mothers and orphaned children. In 1916 the Sisters decided to expand their scope and since then have conducted a well equipped and highly efficient general hospital. All of the already established hospitals had accommodation for children but infant mortality was so high that it was felt desirable to build a hospital exclusively for children. The charitable women who conceived the idea asked themselves where in the city death struck oftenest and there they built their hospital. In those days three children out of ten were doomed never to see their first birthday. In 1909 the nucleus of the present Children's Hospital was built. On opening day a full staff of doctors were on hand to greet the solitary patient, but by the year's end more than 500 sick children had been treated. Over the years the building has been enlarged and its services extended. The large out-patient department is equipped for research as well as for care. Not only the bodies but also the minds of the patients are brought into a state of health. In 1925 an annex was built as the Shriners' Hospital for Crippled Children. This is a teaching hospital.

With the pioneers came the Salvation Army. They had no hospital then but from the time of their arrival it was the practice of its officers to take the sick and homeless into their own homes. A branch of this service dealt with unmarried mothers and in order to give these unfortunates better care a house was used as a hospital. After several migrations a special building was erected as a hospital. The attention and service were so good that many married women expressed a desire to be con-

fined there, so many in fact that the hospital had to be greatly enlarged. As Army personnel were also cared for in Grace Hospital other departments were added until now a complete and thoroughly up-to-date general service is offered. This hospital is used for the teaching of obstetrics.

Victoria Hospital is the outgrowth of a large obstetrical practice. Its founder—Dr. Thomas Beath—built his first hospital early in the century and in 1912 erected a larger building on the present site. Increase in patronage, increase in size and increase in scope followed naturally. Now Victoria Hospital is a popular and well equipped general hospital.

In the early days epidemics were frequent and severe. The first isolation hospital in Winnipeg was set in the grounds of the General Hospital. In St. Boniface, St. Roch's Hospital served a similar purpose. In 1912 the King Edward Memorial Hospital was built for cases of tuberculosis and two years later on the same grounds a large hospital—the King George—was creeted to house cases of infectious disease. Also in the same neighbourhood is the smallpox annex. These three hospitals belong to the City of Winnipeg. By giving free attention to the patients, hospitalization of infectious cases is encouraged and the well protected from the sick. These institutions are important teaching hospitals.

The largest hospital in the district is among the newest. In 1916 an old but pleasantly situated hotel was purchased as a convalescent home for officers. In 1919 it was enlarged and converted into a Veterans' Hospital. Nine years later it was more than doubled in size. During the recent war and since its conclusion new building has increased its capacity to 1,100 beds. Some of its services have been made available to civilians and its excellently furnished laboratories are used for research as well as for care. The wealth of material it contains makes it valuable as a teaching hospital.

The North End of the city is served by St. Joseph's Hospital. This began as a private general hospital but was purchased in 1923 by a Toronto Sisterhood, the Sisters of St. Joseph. Within a few years the building was more than doubled in size and equipped with all the facilities needful for the modern care of the sick. The efficient service rendered by the Sisters has made the institution popular with the profession that plans are being laid for further extension.

Concordia Hospital was founded in 1928 by the Mennonites of Manitoba. The present building was formerly a Hydropathic Sanitarium and was purchased in 1934. The purpose of the hospital was to supply free hospital and medical care to the members of the Mennonite groups who own it, but in these days of bed shortage the governors of the hospital have opened their wards to non-Mennonite pa-

tients. The necessary equipment of a general hospital has been installed and each year sees an increasing patronage by profession and public.

In 1931 the St. Boniface Sanitarium was opened for the care of tuberculosis patients. It is a large completely modern building and its staff is very active in the control and treatment of tuberculosis. It is a teaching hospital. Another institution for the control of tuberculosis is the Central Clinic which is near the Winnipeg General Hospital. It is essentially a diagnostic clinic but there are beds for patients under observation.

Although it is not a hospital the Cancer Institute deserves mention. It is the central controlling headquarters for Manitoba's fight against eancer. Its functions are to educate the public and to assist the profession in the matter of biopsies. radium service and x-ray service. It provides an adequate follow-up system and directs and engages in research.

Some of the hospitals maintain out-patient departments but there is one out-patient clinic with no wards attached. This is the Mount Carmel Clinic. It is situated in a district where hospital facilities are few. It is well equipped and staffed.

The dearth of beds and of nurses has given added importance to two important organizations. Oldest of these is the ancient Order of St. John of Jerusalem. Its nursing sisters are to be found in nearly all of the hospitals acting as aides to the regular nurses, its ancient and honourable insignia still bringing comfort and help to those in need of them. The other organization is the Victorian Order of Nurses. The young women who wear its uniform are a veritable godsend to those doctors and patients who cannot find hospital accommodation. Their skill and care makes it possible to discharge hospital cases earlier and makes home eare more satisfactory when hospitalization is not possible. As it exists in Winnipeg the Victorian Order has incorporated in it the Margaret Scott Mission which was founded and supported by a charitable lady who expressed her pity for the poor by nursing them in their homes. These nurses are not alone valuable as attendants but also as instructors for the education of their charges in the matter of health is one of their missions.

The sick are won back to health in the hospitals but behind them stands the medical school in which most of our doctors have learned their craft. The College was founded in 1883 by a group of enthusiastic and well trained men. From the beginning the standard set was high. At that time the average length of the course was two years of three or four months each with the second year a repetition of the first. Columbia had just embarked upon the experiment of a three year course but again with each year a repetition of the first. The

first class graduated from Manitoba Medical School in 1886 and its members were probably as well trained as, if not better trained than. any of their American contemporaries. This high standard has been maintained. Thus College and hospitals continue to place at the disposal of the sick all the growing armamentarium of weapons against disease. Together they work to keep every doctor abreast of the times. Together they are constantly extending their scope and usefulness. Both are a source of pride to the profession and the hospitals, which are the better known to the public and are a source of comfort to patients who recognize their excellence.

MEDICAL SOCIETIES

The Canadian Otolaryngological Society

The Canadian Otolaryugological Society announce the following program of their meeting, which will be held at Minaki Lodge, Ontario, June 23 and 24.

Monday Morning, June 23

Business Meeting.

Presidential Address-Dr. G. E. Hodge, Montreal, Que. Nasal Deformities, Cougenital and Acquired: Methods of Treatment, Dr. Gordon B. New, Mayo Clinie, Rochester, Minn. (by invitation).

Monday Afternoon

1. The Problems of Postgraduate Teaching of Oto-laryngology in Canada, Dr. P. E. Ireland,

Toronto, Ont.
Discussion—Dr. G. E. Hodge, Montreal, Que.
Dr. Jules Brahy, Montreal, Que.

2. (Tentative title) Some Observations on Radio-graphy of the Sinuses, Dr. A. E. Childe, Winnipeg, Man.

Discussion-Dr. K. O. Hutchinson, Montreal. Que.

Dr. A. L. Crewson, Cornwall. Ont.

3. Examination of the Hard of Hearing (Preliminary Report), Dr. E. E. Scharfe, Dr. G. E. Hodge and Dr. T. Cadman, Montreal, Que.

Discussion—Dr. D. E. S. Wishart, Toronto, Ont.

Dr. V. R. Lapp, Hamilton, Ont.

4. Clinical Observations on the Movement of Nasal
Cilia, Dr. G. E. Tremble, Mourtael, Que.
Discussion—Dr. Howard McCart, Toronto, Ont. Dr. M. R. Levey, Edmonton, Alta.

Tuesday Morning, June 24

1. Audible or Objective Tinnitus, Dr. H. W. Schwartz,

Halifax, N.S. cussion—Dr. D. E. S. Wishart, Toronto. Ont. Dr. T. J. Haughton, Regina, Sask. Discussion-

2. The Indications and the Results of Eight Years' Experience in the Fenestration Operation. Dr. J. A. Sullivan. Dr. McAskile, and Mr. W. E.

Hodges, Toronto. Ont.

Discussion—Dr. E. E. Scharfe, Montreal, Que.
Dr. P. E. Ireland. Toronto. Ont.

3. Pentothal Anæsthesia in Tonsilleetomy, Dr. J. K. M. Dickie, Ottawa, Ont.

Discussion—Dr. F. A. Macneil, Winnipeg, Man. Dr. R. T. Hayes, Saint John, N.B. 4. Indications for, and Observations of, Thirty Years of Radical Mastoid Surgery, Dr. E. J. Washing-

ton, Winnipeg, Man.

Discussion—Dr. G. E. Tremble, Montreal, Que.
Dr. R. H. Stoddard, Halifax, N.S.

Meeting adjourns Tuerday noon.

Defence Medical Association of Canada M.D. No. 4 Branch

The Military District No. 4 Branch of the Defence Medical Association of Canada held a meeting in the Conference Room of the new R.C.A.M.C. Quarters, at 3544 Peel St., Montreal, on Thursday, March 27, 1947. The new Armonry, known as Ross House, is a very impressive building which features a well appointed Officers' Mess and amenities for the comfort of the troops.

Major-General C. P. Fenwick, President of the M.D. No. 4 Branch, was in the chair. There were 60 members present, of a total membership of 110, which is a representative group of all three of the Medical Services of the Armed Forces. Reports of the delegates to the Ottawa Conference were reviewed and discussed. main business of this meeting was the discussion of and recommendations on the advisability of amalgamating the Medical Services for the three Forces.

The meeting adjourned after the Chairman had expressed the appreciation of the Association to the Military Authorities for the use of the new building. Members were granted the privileges_of the Officer's Mess for the evening, and the meeting was pronounced a large success by all present.

London Academy of Medicine

The London Academy of Medicine held its Annual Academy Day on April 23. The guest speakers were Dr. W. G. Maddock and Dr. P. S. Rhoads, of Chicago. In the forenoon Dr. Rhoads conducted a theatre clinic on medical eases and Dr. Maddock conducted a similar presentation of problems in surgical diagnosis. In the afternoon session Dr. Maddock lectured on "Treatment of Carcinoma of the Colon with Preservation of the Sphineters". Dr. Rhoads gave an address on "Management of the Various Pneumonias". The visitors provided a most interesting and profitable program. The andience was large and appreciative. The annual dinner of the Academy was held at the Highland Golf Club and brought a happy ending to a successful year of activity in the Academy.

Moose Jaw and District Medical Society

Moose Jaw and District Medical Society have elected their new officers as follows: Immediate Past President. Dr. L. G. Bray, President, Dr. E. R. Stewardson, Secretary, Dr. H. R. McIntyre.

Prince Albert and District Medical Society

The annual meeting of the Prince Albert and District Medical Society elected the following officers to their 1947 term: Dr. H. A. L. Reid. now of Toronto, as Honorary President, Dr. D. P. Miller, President; Dr. C. H. Andrews, 1st Vice-president; Dr. R. M. Lattey of Birch Hills, 2nd Vice-president; Dr. H. H. Hall, Secretary-treasurer; Executive committee, Drs. J. H. Schropp of Cudworth, J. B. Legault of Domremy, E. A. Frejd of Prince Albert, and P. J. Rich of Prince Albert.

Quebec Division of the Canadian Medical Association

The annual meeting of this Division was held in Quebee City April 18 and 19, 1947. The attendance was excellent, and an exceedingly interesting and pleasant program was carried out.

The following officers were installed: President-Dr. C. A. Gauthier; President elect—Dr. M. Stalker; Honorary Treasurer—Dr. W. de M. Seriver; Honorary Secretary—Dr. G. W. Halpenny; Chairman of Executive—Dr. E. S. Mills.

The following chairmen of standing committees are continuing in office without change: Committee on Archives—Dr. W. W. Francis; Committee on Maternal Welfare—Dr. J. R. Fraser; Post Graduate Committee— Dr. W. J. McNally; Committee on Nutrition-Dr. H. Dr. W. J. McNahy; Committee on Nutrition—Dr. H. Nadcau; Committee on Legislation—Dr. W. H. Delaney; Committee on Ethics—Dr. F. S. Patch; Committee on Economics—Dr. R. Vance Ward; Committee on Cancer—Dr. C. B. Peirce, Dr. L. Berger—co-chairman; Committee on Constitution and By-Laws—Dr. L. Gérin-Lajoie; Committee on Membership—Dr. Jean Saucier; Committee on Public Health-Dr. A. Groulx.

Regina and District Medical Society

At the last regular monthly meeting of the Regina and District Medical Society, March 28, 1947, the Society was addressed by Dr. H. H. Hepburn of the Neurosurgical staff of the University of Alberta. Dr. Hepburn spoke on low back pain with special reference to extruded intervertebral discs, giving his own impression as to cause, symptoms and the surgical approach.

St. Francis Valley Medical Society

The last monthly meeting of the St. Francis Valley Medical Society was held on April 24, 1947. This meeting was of particular interest in view of the special speakers whom we had, namely, Dr. A. E. Moll of Montreal, who gave a very interesting discourse on "Psychiatric Treatment in General Practice". This subject was covered very thoroughly and at the same time many points of practical value were given to those

in general practice.
Dr. D. MacKenzie discussed "Diseases of the Liver and Gall Bladder from a surgical point of view". Dr. J. Olivier presented a pathological discussion of "Cystic Diseases of the Breast". A film was also shown presenting the modern treatment of anemias. Those present felt that this meeting was very profitable.

La société médicale des hôpitaux universitaires de Québec

Société médicale des hôpitaux universitaires de Québec vendredi, le 21 mars 1947, à la Crèche Saint-Vincent-de-Paul.

JUMELLES BIVITELLINES DONT UNE MONGOLIENNE .-Euclide Deschêne.

Quand le mongolisme apparaît chez des jumeaux de sexe différent (dizygotes) un seul est affecté. Quand le mongolisme apparaît chez des jumeaux de même sexe, mais nettement bivitellins (dizygotes), un seul est affecté. Notre observation personnelle se rapporte à ee cas. En effet, il s'agit de deux jumelles bivitellines de seize mois dont une est mongolienne et l'autre normale. Quand le mongolisme apparaît chez des jumeaux univitellins ou micux monozygotes, les deux sont atteints. Le mongolisme survient rârement plus d'une fois dans la même famille. Plusieurs hypothèses pathogéniques ont été préconisées. La théorie germinale est la plus acceptée—avec comme causes prédisposantes: Maladie chronique des géniteurs, misère physiologique, souffrances morales, âge physiologique avancé de la mère.

SURDITÉ SECONDAIRE AUX OREILLONS .- F. Letarte.

Les oreillons désignent une infection généralement bénigne quand elle se localise aux glandes salivaires. Le pronostic est réserve dans les accidents encéphalitiques qui paralysent des nerfs craniens, l'auditif dans le cas de la présente communication. Les statistiques américaines basées sur des examens audiométriques mentionnent une fréquence de 2 à 6%. Les compliea-tions méningées sont toujours marquées par une

lymphocytose céphalo-rachidienne, mais sans séquelles graves. Les paralysies sont moins fréquentes, mais plus sérienses; elles sont parcellaires. La paralysie de l'auditif cause une surdité mixte, le plus souvent définitive et unilatérale dans les trois quarts des cas. Le labyrinthe acoustique est généralement détruit et le labyrinthe statique est rârement endommagé de façon permanente.

Deux observations sont présentées avec audiogrammes et antres examens acoumétriques. Ces deux eas ont manifesté une surdité acquise, unilatérale et

définitive.

THROMBOSE DES VEINES RÉNALES ET INFARCTUS DUREIN. COMPLICATIONS DES DIARRHÉES TOXIQUES DES NOUV-EAUX-NÉS .- D. Lapointe.

Trois observations de thrombose rénale, complications de la diarrhée toxique, sont rapportées. Ces malades ont démontré une fois de plus, la difficulté du diagnostic de cette complication pendant la vie, à eause de l'absence de symptômes précis chez deux d'entre eux. C'est à l'autopsie que le diagnostic se fait le plus souvent. Quant à la pathogénie de ces accidents, elle n'est guère plus précise que les symptômes.

Toronto Academy of Medicine

At a meeting of the combined sections of Pædiatries and Preventive Medicine and Hygiene on April 17. Dr. C. E. VanRooyen, professor of Virus Infection at the Toronto School of Hygiene, formerly of the University of Edinburgh, spoke on "Recent Developments in the Study of Virus Infections". He described rickettsialpox which is characterized by macular, papular, vesicular lesions; it is transmitted by bites of a mite living on a monse. Cases have recently occurred in New York boarding houses where mites occasionally bit the inmates. Diagnosis is made by complement fixation tests using two specimens of blood, one taken early and the other late in the disease.

He mentioned Q fever, another virus disease transmitted by rickettsia. The patient has a high fever like typhoid and lobar pneumonia, the lungs show x-ray changes. Rickettsia were isolated from troops in Italy and Greece who had "Balkan Fever". Questions unanswered are: how often is it the eause of lung disease? What is its relation to primary atypical pneumonia? The cold seroagglutinin test is not always, reliable. These cases are hard to find, only the alert man will pick them np.

Dr. VanRooyen said that rubella as a cause of congenital malformations in infants is a most destructive disease if the growing literature is correct. Rubella in the pregnant woman has apparently resulted in congenital heart disease, hypospadias, eye disease and deafness. Rubella is dangerous for women in early pregnancy. Some favour termination of pregnancy if it is less than four months. The whole problem demands

careful study.

He discussed acute mesenteric lymphademris. The symptoms are like acute appendicitis in children. Glands in the mesentery are enlarged, and it clears up spontaneously. Tuberculosis and Hodgkin's disease have been looked for and not found in these children. By the process of exclusion it is assumed to be a virus disease.

He raised the question of whether infective hepatitis and serum jaundice are two different diseases. Infective hepatitis has a 15 to 30 day incubation period. when the patient is cured the virus disappears. Serum jaundice has a 30 to 90 day incubation period. After one attack the patient's blood may be icterogenic, that is, if used as a blood donation it may produce jaundice in the recipient. This means that a virus disease can

be carried by a normal person.

Anti-viral substances present a difficult problem.

Many chemicals and antibiotics have been used with no effect. Therapy effective in laboratory animals may not be effective in humans. An example of this was V 147

and V 186 which worked well on mice infections and

were failures in man.

Photographs of viruses were shown magnified 100,000 times, taken in the Department of Physics with the electron microscope. They were in even rows side by side, circular in shape, all the same size; there was no sign of cell division or of viruses in a youthful stage.

The question is, how do they reproduce?

"The Use of Penicillin in Oil and Beeswax" in the treatment of a series of cases of gonorrhea was described by Dr. Freda Fraser and Dr. Lillian Lome. They used a single dose of calcium penicillin in beeswax. As a test of cure they demanded six negative smears and cultures, using this standard they got 67.7% cures. Some clinics ask for only three negative smears They noticed that cases which failed to and cultures. clear with sulfathiazole failed with more sulfathiazole but a failure with penicillin is usually cleared up with more penicilliu. The patients belonged to a young age group (17 to 23) and were difficult to follow.

Dr. Donald Fraser spoke on "Multiple Antigens". He does not care for the term but considers mixed vaccines no better. TAB was used as a multiple antigen in 1916. In 1923 detoxification of diphtheria toxin was done, the detoxification of tetanus toxin followed. In 1926 Ramon used Para A and Para B, tetanus and diphtheria toxoid as a multiple antigen. In 1940 when TABT was first used in the Canadian Army anaphylactic reactions occurred. It was decided to change the media to that used by Ramon, and since that was done no anaphylaetic reactions have occurred. V-J Day, blood was taken from 1,095 men who had been treated with TABT, this was titrated for tetanus antitoxin. 99.5% showed enough antitoxin to protect against tetanus, the five who lacked sufficient antitoxin had not had the required number of doses. Of 5,300 Canadian battle casualties none died of tetanus, one case occurred in the Air Force following an aeeident. There were no tetanus deaths in U.S.A. Forees. Booster doses are essential. If a patient who has had tetanus toxoid is exposed to tetanus infection a booster dose of toxoid gives him more protection than tetanus antitoxin.

Dr. Nelles Silverthorne spoke on the National Education Program. He said that the Department of National Health tries to educate the public about the necessity of immunization by radio, by posters and by speeches. In spite of their efforts in 1945 Canada had 5 eases of smallpox, 2,786 eases of diphtheria with 270 deaths. It is estimated that 25,000 children in Toronto have not

been given toxoid.

Toronto East Medical Association

LILLIAN A. CHASE

The Toronto East Medical Association presented The Canadian Mastersingers under Conductor Mr. Poul Bai in a two-night performance in Northern Vocational Auditorium on April 16 and 17. This talented group, attired in native costumes presented in English, Pagliacci and Cavalleria Rusticana. They were enthusiastically received by over 2,000 patrons. As guest artist, Robert Graham, noted Canadian violinist, charmed the audiences with several selections and encores. He was accompanied on the piano by his mother, Mrs. Kingsley Graham. Robert Graham is a fifth year medical student at University of Toronto, but has found time to be a guest artist with the Toronto Symphony, Chatauqua and Duluth Symphony Orchestras.

The proceeds were donated to the Toronto East General Hospital in aid of the 330-bed extension which

will be started shortly.

Report of the Third Session of the Interim Commission of the World Health Organization Held in Geneva, March 31 to April 11, 1947

The Canadian delegates were: Dr. G. D. W. Cameron, Deputy Minister of National Health, Ottawa; Dr. A. Melanson, Chief Health Officer, New Brunswick; Dr.

T. C. Routley, General Sceretary, Canadian Medical

Eighteen nations are represented on the Interim Commission, and delegates were present from all but one. The Agenda was a fairly heavy one. Among the more important items were the following:

A progress report from the Secretariat which indicated that a tremendous amount of work had been done by the staff in developing the organization in various parts of the world.

Ratifications: Reference to previous reports reveals that the first Plenary Session of the World Health Organization is to be held not later than six months

following the ratification of the Constitution by 26 nations. In this connection, the following is reported:
Ratifications received: China, United Kingdom.
Canada, Iran, New Zealand, Syria, Liberia. Ratifications in progress: Italy, The Netherlands, Switzerland. making a total of 10.

Recent signatures awaiting ratification: Sweden and

Other ratifications in progress: reported as shortly to be received, S: expected in April, 2: expected in May, 3; expected in August, 1.

Nations reporting definite progress to date but ratification not complete, 15; Nations from whom no report has yet been received regarding ratification, 25. From the foregoing, it will be revealed that 10 ratifi-

cations are now in hand with 29 on the way.

First Plenary Session.—Considerable discussion took place with regard to the time and place of the first Plenary Session. Assuming that the necessary ratifications will be in hand by midsummer, the World Health Organization will most likely convene towards the end of this year or early in 1948. While no definite decision was made as to time or place, it would not be improper to state that the location would appear to have narrowed down to one of three locations, namely, Europe, United States or Brazil. A definite decision will be taken at the fourth session of the Commission.

Permanent location of World Mealth Organization.—Canada is a member of a six nation committee set up to study and report upon this important question. The Committee has already received many arguments with respect to location. One school of thought believes that the organization should be centred somewhere in Europe. thereby being closer to the area said to be most in need of the World Health Organization's services. Another group are strongly of the opinion that the World Health Organization should be located at or near the head-quarters of the United Nations; and, furthermore, that there are definite advantages in setting up the permanent headquarters in the Western Hemisphere. The Committee is continuing its studies, inviting the nations to put forward any suggestions or recommendations they may have; and the commission hopes to be prepared to make a recommendation to the first Plenary Session of the World Health Organization.

Relations with other bodies.—One of the largest problems concerning the World Health Organization is involved in establishing satisfactory relations with a number of other bodies, including the United Nations, UNESCO, UNRRA, Pan-American Sanitary Bureau, Food and Agriculture Organization, International Labour and the various non-Governmental and Professional Organizations which are concerned in matters of health. It can be reported that, in all these matters, satisfactory progress is being made. The World Health Organiza-tion has already assumed the health obligations of the Office International d'Hygiene Publique, the health division of the old League of Nations, and UNRRA. The Pan-American Sanitary Bureau which has been operating in the Americas for 40 years (and in the opinion of the South American countries, very successfully) shows no disposition to hurry its integration with the World Health Organization. Some members feel that the culmination of this relationship is progressing rather slowly in that the New York Conference in 1946 clearly indicated that there must be one World Health Organiza-

tion and that it must include all parts of the world. The Pan-American Sanitary Bureau is not disposed to vacate its field and hand over all its obligations to the W.H.O. until and unless it is very clear to them that the W.H.O. is well qualified to assume such responsi-bilities. A number of bilateral conferences have been held and are to continue looking to the happy and harmonious consummation of complete integration.

Field services.—Considerable progress has already been made in establishing field services to meet urgent health needs. Particularly is this so in devastated areas of Europe and in some parts of the far East. Experts in the field of malaria, yellow fever and communicable diseases have been appointed to begin surveys and provide help where badly needed.

Sanitary conventions.—This will be one of the important fields for W.H.O. World-wide travel having been so greatly augmented and accelerated, has tended to definitely increase the need for well conceived and actively controlled sanitary conventions. This is a very large problem demanding careful consideration and delineation. Definite progress was made in this field.

Nomenclature of diseases and causes of death.—The International Committee which held its session in Ottawa during the winter reported considerable progress in connection with this subject. The nomenclature which will be accepted throughout the world will greatly facilitate - the handling of morbidity and mortality statistics and

serve other useful purposes.

Technical services.—Considerable discussion took place with regard to library and reference material. Forms of registries which will be available for public for public to the public forms of registries which will be available for public forms. information will require much care in their preparation. This is a field which, if properly developed, will be of

service to all nations.

Financial matters.—As might be expected, considerable time was devoted to discussing a budget for the World Health Organization for the ensuing year. It was decided to recommend that a sum approximating \$5,000,-000 be made available to the Organization for the year 1948. It was considered that this is a minimum sum to request if the Organization is to tackle properly the world health problems which appear to demand attention at this time.

Next meeting of the commission.—It was agreed that the fourth session of the Commission will be held in Geneva during the first two weeks of September, 1947.

SUMMARY

The two weeks' deliberations of the third session of the Commission might be regarded as structural discussions, all of which were necessary in the building up of a new international agency of such wide scope and importance as a World Health Organization, The spirit of friendliness, understanding and mutual good-will which has been established among the member delegates of the Commission is a striking testimony to the ability of the nations of the World to get together on problems of mutual interest and concern. It is a privilege, indeed, to work on this Commission with such a fine group of people from all'corners of the world; and it is not improper to single out for a word of special commenda-tion of the Executive Secretary, Dr. Brock Chisholm, who is efficiently handling a very large problem with a very small staff.

World Medical Association

The third session of the Organization Committee of the World Medical Association was held in London on April 14 and 15, 1947. Those in attendance were: Dr. T. C. Routley (Chairman), Canada; Dr. P. Glorieux, Belgium; Dr. D. Knutson, Sweden; Dr. O. Leuch, Switzerland; Dr. J. A. Pridham, Great Britain; Dr. L. G. Tornel, Spain; Dr. A. Zahor, Czechoslovakia; Dr. Louis Bauer, United States; Dr. Elmer Henderson, United States; Dr. P. Cibrie, France, and Dr. Charles Hill, Great Britain, Joint Secretaries.

Regrets at inability to attend were received from the Vice-chairman, Dr. F. Decourt of France and Dr. I. Shawki Bey of Egypt.

CONSTITUTION AND BY-LAWS

The main task of the Committee has been the preparation of the draft Constitution.' The major part of the two days was given over to a clause by clause consideration of this document. The Committee believes that the Articles and By-Laws which have been prepared will commend themselves to the Assembly with perhaps minor modifications and amendments which will no doubt be offered.

THE FIRST MEETING

It was agreed to hold the first meeting of the World Medical Association in Paris on September 17 to 20, 1947, inclusive. In addition to extending invitations to the 32 founder Associations, approximately thirty national medical associations will be invited to send delegates and alternates to this meeting. It is anticipated that the first two days will be devoted to a consideration of the Constitution and By-Laws. When this is accomplished, the World Medical Association will be officially established and will proceed forthwith to elect its officers and council and consider its program for the ensuing year.

SUBSCRIPTIONS

A lengthy discussion took place with respect to the annual subscription. Your Committee recognizes that a number of the smaller associations, many of which were adversely affected by the war, would find it difficult to meet a large subscription. On the other hand, it is recognized that, if the World Medical Association is to perform useful and appropriate functions, it must have sufficient funds to do so. It is hoped that the financial obligation will not be a burden upon any of the member bodies.

SECRETARIAT

During the year of organization, secretarial services have been provided jointly by the British Medical Association and the French Federation, through the kind services of Dr. Hill and Dr. Cibrie. These two officers and the bodies they represent are quite prepared to continue to serve the Association so long as it is understood that, as soon as may be convenient, the Association will establish a single secretariat on a full time basis. No doubt this will be one of the important items to be considered at the first annual meeting.

MEMBERSHIP

Of the thirty-two founder Associations, membership has already been completed by the following: Australia, Federal Council of the B.M.A. in Australia tralia; Austria, Oesterreichische Aerzte Kemmertag: Belgium, Federation Medicale Belge: Canada, Canadian Medical Association; Czechoslovakia. Czecho-slovak Medical Association: Denmark. Den Almindelige Danske Lacgeforening; Eire, Medical Association of Eire; France, La Confederation des Syndicate Medicaux Français; Great Britain, British Medical Medicaux Francais; Great Britain, British Medical Association; Hungary, Orszagos Kozegeszegugyi Tanacs; Netherlands, Nederlandsche Maatschappij Tot Bevordering der Geneeskunst; Norway, Dan Norske Laegeforening; Palestine, Palestine Jewish Medical Association; Portugal, Ordem dos Medicos: Spain, General Council of Colleges of Spanish Doctors; Sweden, Swedish Medical Association; Switzerland, Federation des Medecins Suisses; United States of America, American Medical Association.

Inquiries have been received from many organizations, including seventeen countries in the Pan American group, and it is hoped that, by the time the General Assembly convenes in September, requests for membership may have been received from most of

them.

INVITATIONS FOR FUTURE MEETINGS

The Committee had before it invitations from Czechoslovakia, Spain, the United States and Canada for the 1948 Annual Meeting. After very careful consideration the Committee unanimously agreed to recom-mend that the 1948 annual meeting be held in either Prague or Madrid.

RELATIONSHIP WITH OTHER BODIES

Dr. Cibrie reported on his attendance at the plenary session of U.N.E.S.C.O. which took place in Paris in November and December last. The Committee was glad to be advised that U.N.E.S.C.O. desires to enjoy the closest friendly relations with the World Medical Association and will be glad to render our Association any assistance within its power.

DISSOLUTION OF A.P.I.M.

The Committee was advised that arrangements had been made for the dissolution of A.P.I.M. with effect from June 15, 1947. The Committee placed on record its keen appreciation of the generous action of the A.P.I.M., the predecessor of the World Medical Association, and heartily welcomed the old body into the

Publication of a Journal

The Committee proposes to recommend to the General Assembly that a Journal be produced as quickly as possible, the first issue being largely in the nature of a propaganda effort. The Journal will be published in the English and French languages.

WAR CRIMES

The Committee was advised that the British Medical Association is preparing and intends to submit to the General Assembly for consideration, a statement on the profession's attitude towards war crimes.

BOOKLET ON NUTRITION

The Committee was advised that the Committees on Nutrition of the A.M.A. and C.M.A. had collaborated in the production of an illustrated booklet on Nutri-tion. Subsequently the Committee was assisted by Lord Horder, Chairman of the Food Committee of the United Nations. This joint committee is prepared to United Nations. This joint committee is prepared to make available to the World Medical Association 500,000 copies of the booklet printed the appropriate languages for distribution to every Doctor in the world. The Joint Committee further advised that gift funds in the amount of \$100,000 were available to the World Medical Association for the publication and distribution of these booklots. The Committee gratefully accepted the offer and appointed a special committee consisting of the Chairman, Dr. Bauer and Dr. Henderson to represent the W.M.A. in arranging the details of distribution.

QUESTIONNAIRE

The Committee approved a Questionnaire to be sent to all national medical associations. It is hoped that the replies which may be received will provide useful information to all member associations.

AMERICAN MEDICAL ASSOCIATION CENTENARY

The Committee received an invitation from the American Medical Association to appoint an official delegate to the Centennial Meeting of that Association, which will be held in Atlantic City during the week of June 9. The Committee appointed the Chairman Dr. W. C. Poutler, as its delegate. man, Dr. T. C. Rontley, as its delegate.

Conclusion

It was the opinion of your Committee that the two days' deliberations were very satisfactory. One of the delightful features of the meeting was the compli-mentary dinner tendered to the Committee by the Council of the British Medical Association on Monday evening, April 14, with the President, Sir Hugh Lett, presiding.

MISCELLANY

Most Milk Supplies Unpasteurized

In view of the scientific fact that pasteurization makes milk fit for human consumption, it is an appalling revelation that of 366 municipalities reporting in a recent survey in the eight provinces outside Ontario, only 13% were revealed to have compulsory pasteuriza-tion by-laws. Ontario was not included because it is the only province in the Dominion which has a provincewide law in force.

Saskatchewan headed the individual provinces in the matter of cities and towns reporting safe milk by-laws,

matter of effics and towns reporting sate link by-laws, 20% being in this entegory. Quebee was next with 15% reporting compulsory pasteurization by-laws.

Of the 366 reporting municipalities, 90, or approximately 25%, reported their entire supply was unpasteurized. Sixteen revealed that while they had no compulsory by-law their supply was 100% pasteurized.

Forty-one municipalities, including 15 in Quebec and eight in Alberta, revealed that 90% or more of their milk supply was pasteurized.

From the results of the survey, it would appear that many thousands of Canadians are drinking raw milk despite the fact that raw milk can be dangerous—despite the fact that milk-borne diseases have caused much needless, killing and crippling illness.—Health News Service, The Health League of Canada.

CANADIAN MEDICAL WAR SERVICES

MEDICAL OFFICERS STRUCK OFF STRENGTH OF THE R.C.A.M.C.—ACTIVE FORCE

MARCH, 1947

(Previous sections in January, March, April, May, June, July, September, October, November and December, 1945 and January, March, May, Junc. July, August, September, October, November and December, 1946 and January. February, March, May, 1947.)

SECTION XCI

Name Address Date struck off	strength
Bloomberg, M. W., 4054 St. Catherine St. W.,	
Montreal	3-2-47
Butt, E. G., Peele St., Woodstock, Out.	10-2-47
Cramer, R. W. I., 2 Suffolk St., Guelph, Out.	29-1-47
Davey, E. L., 23 Linden Terrace, Ottawa, Out.	21-1-47
Dixon, F. O., Sudbury, Ont.	21-2-47
Erb, J. T., S Burnside Drive, Toronto 10	8-2-47
Fassina, R. J., Port Arthur, Out.	28-1-47
Freele, L. W. M., Glencoe, Ont.	23-1-47
Goldenburg, H., 53 Burnside Drive, Toronto	13-2-47
Haber, J., 326a High Park Ave., Toronto	6-2-47
Johnson, H. H. C., 96 Bagot St., Kingston, Out.	28-1-47
Kalant, 11., 54 Davisville Ave., Toronto	$19 \cdot 2 \cdot 47$
Lugsdin, G. H., 27 Standish Ave., Toronto	13.2.47
McKenna, L. B., 485 Dundas St., London, Ont.	8-3-47
Maepherson, A. W., 107 Wellington St., St.	
Thomas, Out.	5.2.47
Merritt, R. I., 126 Westmount Ave., Toronto	23-10-46
Rumball, N. H., 1 Marjory Ave., Toronto	22-2-47
Smylie, R. D., R.R. 3, New Liskeard, Ont.	6-2-47
Stevenson, J. D., 73 Ethelbert St., Winnipeg	10-8-46

28-1-47

Warren, W. J., Alex, Alta.

SPECIAL CORRESPONDENCE

The London Letter

(From our own correspondent)

THE POLISH SCHOOL OF MEDICINE

The recent announcement of the disbanding of the Polish Faculty of Medicine in Edinburgh marks the end of one of the most interesting innovations of the recent war. Following Dunkirk the Polish troops who escaped from France were concentrated mainly in Scotland, and it was the large number of Polish medical officers seeking postgraduate education that was responsible for the suggestion that a special Polish school of medicine should be set up in Edinburgh to provide such education as well as to provide a complete medical training for undergraduates. In 1941 the Polish Faculty of Medicine was formally constituted. Full facilities were provided by the University of Edinburgh, and these included the especially established Padercwski Hospital. The staff included nine professors and six senior lecturers, and they were assisted by several of the Edinburgh professors, including those of bacteriology, path-

ology, forensic medicine, midwifery, and medicine.

The school grew steadily and in its last year had 241 students, many of whom took an active part in the undergraduate activities of the University. At one time it was thought that the school might become a permanent feature of the University, but this has not proved possible. It is to be hoped that the lessons to be learnt from this practical and successful experiment in international co-operation will not be overlooked in the

difficult days that lie ahead.

A SIGN OF THE TIMES

Much interest has been evinced in the April issue of The Practitioner which took the form of a special number devoted to a symposium on "Sex and Its Disorders". Whatever views may be held concerning the present attitude to sex, it is clear that people are turning with increasing frequency to their family doctors for advice in the matter. Yet all too often the doctor is unable to give the expected guidance. For this inability the medical curriculum is largely to blame. It was to aid the doctor in dealing with these difficult cases that this symposium was arranged.

The keynote of the symposium is set by the Bishop of London in his introductory chapter on "Morals and Sex": "it is almost incredible that a nation which has arrived at our boasted pitch of civilization and culture should allow its youth to suffer from such a miserable lack of guidance with regard to things so vital to their well-being". An article by the Right Hon. Henry Willink, K.C., a former Minister of Health and a distinguished lawyer, provides the first expression in this country of the legal aspects of artificial insemination. Quoting with approval a recent decision in the Canadian courts, he makes it abundantly clear that those who practise this latest cult are acting without the law of the land.

MEDICINE AND POSTAGE STAMPS

The History of Medicine Section of the Royal Society of Medicine struck an original note last month when it staged an exhibition of "Medical history in postage stamps". Whether the real philatelist will regard such an innovation with equanimity is doubtful, but to the amateur, as well as to the doctor, the exhibition proved most interesting. To Ecuador, apparently, goes the honour of being the first country to issue a postage stamp depicting a medical man; this was in 1899, and the portrait was that of F. Espejo (1746-99). More than a quarter of a century was to pass before this lead was followed by the issue in 1928 of a Netherlands stamp showing Boerhaave.

Other notable members of the profession who have been honoured in this way are Semmelweiss, Purkinje, Koch and the Curics. The only British member of the profession to be recognized in this way is Sir Wilfred Grenfell who was the subject of a Newfoundland stamp issued in 1941. Even Florence Nightingale has been ignored in this respect by her own country and has had to await postal recognition by Belgium and France.

MEDICINE AND OFFICIAL SECRECY

The development of atomic research over here is bringing to the fore a problem that has been vexing the minds of the profession ever since the end of hostilities. This is the apparently unwarranted delay on the part of several Government departments in releasing for general publication the results of research work carried out during the war. Much fundamental research work carried out during the war has direct therapeutic applications. No one questioned the need for strict secrecy during the war, but there is a growing consensus that finds it difficult to appreciate why the results of such research should not now be freely available to all who are interested in the problems involved. When the Official Secrets Act is invoked to prevent free publication and thus delay the benefits of such work being transmitted to the victims of

disease the medical profession becomes closely involved.

The absurdity of the position is enhanced when it is realized that much of the information considered "confidential" or "secret" over here has already been made freely available to the world through publication in American scientific and medical journals. Where the medical profession has failed in its efforts, public opinion may well carry the day, and it is here that atomic research comes into the picture. The Chemical Workers' Union has taken the matter up by instituting an "inquiry into the sickness caused by radio-activities", but has been informed, according to one of their vice-presidents, that any detailed disclosures on the subject might constitute a breach of the Official Secrets Act. This is a position that has been described by one of our leading newspapers as "intolerable".

Any comment on this particular issue would be unjustified until fuller information is forthcoming, but the issue appears to be similar in principle to that which the profession has already encountered. It is to be hoped that it will be responsible for a general release of all "secret" information that has immediate practical application in the sphere of medicine.

WILLIAM A. R. THOMSON

London, May, 1947.

ABSTRACTS FROM CURRENT LITERATURE

Medicine

Lymphomas and Leukæmias. Craver, L. F.: Bull, N.Y. Acad. Med., 23: 79, 1947.

These diseases can affect any part or function of the body, can mimic many other diseases and are not so rare as popularly supposed. It is not helpful to think of them under the single concept of lymphoblastomas or leukæmia, but borderlines are not sharply drawn and transitions from one form to another apparently occur. They should be thought of in dynamic and functional terms rather than as static pathologic entities.

In the skin myeosis fungoides is often spoken of as a cutaneons manifestation of lymphoblastoma. The author has not seen it as part of Hodgkin's disease, and as the older cases show the microscopic structure of reticulum cell sarcoma it should be classed with the lymphosarcomas if regarded as lymphoma, but its long course argues for its being kept separate. The pruritus seen in about 30% of cases of Hodgkin's disease while usually generalized may have a regional distribution suggestive of a neurological basis. It is to be noted that the Pel-Ebstein type of recurring febrile episodes is not actually very common, fever in lymphomas not In lymphousually following any distinct pattern. sarcoma and Hodgkin's disease the diagnosis must be based, if possible, on lymphnode biopsy. It is better to select a node which has been enlarged longer and is part of a group of nodes, rather than a small peripheral easily accessible node.

In treatment the radioactive isotopes and nitrogen mustards have proved to be useful tools, but neither agency has as yet equalled the all-round efficacy of roentgen therapy. The nitrogen mustards are useful chiefly in those cases of Hodgkin's disease in which generalization has begun and constitutional symptoms are present. To a less extent they are useful in very advanced cases which have become radio-resistant, or in lymphosarcoma, lympholeukosarcoma and chronic lymphatic leukæmia. Radioactive phosphorus has been found chiefly useful in polycythæmia vera, chronic myelogenous leukæmia and chronic lymphatic leukæmia. It has the advantage of causing no radiation sickness, but is not sufficiently radioselective and its destructive effect on bone marrow is its limiting factor. The Heublein method of external whole body low intensity prolonged irradiation by x-rays seems to add to the survival period and to the periods of remission in Hodgkin's disease, lymphosarcoma and chronic lym-D. E. H. CLEVELAND phatic leukæmia.

Recent Advances in Cancer Research. Rous, P.: Bull. N.Y. Acad. Med., 23: 65, 1947.

One of the greatest advances has been the arrival by scientists at the viewpoint that cancer is not a separate neoplastic entity but merely one of the group of true neoplasms which are expressions of a single principle, the "neoplastic principle". Experimental study has in the past concentrated on producing cancers, using the term "carcinogenic" and overlooking the fact that the carcinogens produce not only malignant epithelial tumours but a diverse group depending upon the kind of cells their action is directed upon. These include the leukæmias which are now acknowledged as belonging to the neoplasms.

We live in an environment of carcinogens which are increasing in number and variety with the development of new industrial processes. That any of us escape cancer is because the action of most carcinogens is occasional or weak. There appears to be an inverse ratio between the height of incidence of cancer and the posi-tion up or down the social scale of the individual. The skin of poor people seems to be more liable to injuries productive of cancer, and their ingesta probably is more likely to contain carcinogens. Amongst instances of the latter is cited the eating of superheated fats formed from imperfect frying which may contain certain hydrocarbons known to be careinogenic.

Some of the more newly synthesized carcinogenic hydrocarbons are nearly related to such substances as methylcholanthrene, almost the most powerful of chemical carcinogens, and which is normally present in the organism. Related to this is the discovery that extracts of some cancerous human tissues are able to produce malignant tumours when injected subcutaneously into

laboratory animals or painted on their skin.

The belief long held that cancers arise where there is chronic tissue disturbance, as at flexures of the gut, has received confirmatory evidence, but a special factor is necessary to bring about neoplastic change here. It has been found that neoplastic change in response to a carcinogenic agent takes place when the tissue is in a hyperplastic state. This may be due to injury, and the carcinogenic agents act through the depression of cellular activities which they themselves bring about. the same time it was learned that not only did transplanted tumours in animals grow more slowly when carcinogen they disappeared. Arising from this the attempt is being made to synthesize hydrocarbons closely

related to those known to be carcinogenic which might check already established tumours. The employment of the nitrogen mustards, which retard cell activity, in lymphomas and leukæmias indicates a measure of success in this direction.

The idea that cells escaping from some controlling influence exerted by the organism and unrestrainedly proliferating was the cause of cancerous growth has been discarded completely. Repeated and successive paintings of the skin at different points with a carcinogen shows that successive tumours are not more easily

produced than the first.

In pure-bred strains of laboratory animals it has been found that certain strains have liabilities to certain tumours, others to others. Contrary to expectations these properties were not always transmitted hereditarily through the chromosomes. The tendency to mammary tumours in mice for instance was transmitted through the mothers but if the young were taken from the mothers at birth and suckled by mothers of a strain not developing mammary carcinoma these offspring escaped the disease. Reversing the process, the tendency to mammary carcinoma could also be conferred. Extensive study of the "milk factor", as it is called. has resulted in the explanation that is is a harmless virus which lives in mammary tissue, reaching it from the gut, and varies to become a cancer-producing virus only when its cellular environment undergoes pathological change as in the breast of aging mice. Although this is additional evidence favouring the conception that tumours in general may be due to viruses, no virus capable of directly causing tumour has yet been obtained from tumours of the usual laboratory animals. It has been shown that the large papillomas occurring in the tails of Western cottontail rabbits are virus-induced. and these in turn give rise to metastasizing squamouscell carcinomas, yet nothing can be obtained from these growths which will produce cancer or papillomas in other individuals.

The belief that a tumour is an autonomous growth and its cells anarchic has resulted in much misdirection of effort in cancer research, and has received a heavy blow in the observation of the effect of gonadal male sex hormone on prostatic cancer. This dependence of some tumours upon hormonal influence shows that the change of a normal cell to a tumour cell does not mean that a growth will result. Even the most anaplastic prostatic cancer cells retain their normal function of elaborating acid phosphatase. Many skin tumours, including squamous cell carcinoma, appearing after exposure to carcinogenic agents will disappear if the action of the agent is withdrawn. For instance if the caloric intake is cut down in such cases in laboratory animals fewer tumours are produced by these agents and they are slower in appearing. out fresh exposure to the carcinogen the growth speeds

up if the caloric intake is again raised.

D. E. H. CLEVELAND

Unusual Reaction Following Benadryl Administration. Geiger, J., Rosenfeld, S. Z. and Hartman, L.: J. Am. M. Ass., 133: 392, 1947.

Unusual Side Effect from Benadryl. Weil, H. R.: idem, p. 393.

Prolonged Reaction to Benadryl. Schwartzberg. S. and Willerson, D.: idem, p. 393.

Danger with Benadryl of Self Medication and Large Dosage. Borman, M. S.: idem, p. 394.

The story of several other recently introduced drugs. such as the newer barbituric acid compounds, the sulfonamides and penicillin, is repeating itself in the case of benadryl (betadimethylaminoethyl benzhydryl ether hydrochloridc). A wide field of rational use, including a number of conditions notoriously recalcitrant towards older drawn and the conditions of the co towards older drugs, and popularization in lay as well as in professional literature, has led to their extensive and indiscriminate employment. Often they are ordered in conditions in which an understanding of the nature of the disease process present and the pharmacology of the remedy would at once show their uselessness. In the case of many of the remedies there is a general belief that they are not only universal panaceas but perfectly harmless as well. Later when "side effects" begin to be recognized there is astonishing reluctance on the part of the profession in general to inform itself with respect to them, even when they are sometimes shown to be of a toxic or allergic character. Until recently, while it was recognized that drowsiness even to the degree of narcolepsy might occur, or cerebral excitement, after taking benadryl, with occasional digestive disturbances, it has been generally thought that nothing worse would follow taking the usual doses up to 200 mgm. per day.

The four reports mentioned above show however that the physician must be aware of the possibility of toxic or allergic symptoms of serious degree and ready to recognize and treat them. In one case after taking 350 mgm, in 4 days a woman showed a severe shocklike reaction with nausen, palpitation and dimness of vision, culminating in unconsciousness with imperceptible pulse. In another a 3½ year old child after taking 400 mgm; in 4 days became irrational, with uncontrolled muscular hyperactivity, hypertonic reflexes and disorientation. A third patient, a man of 38, took 1,150 mgm. in 20 days. He then developed impaired co-ordination of muscular movements, thought and speech. There were also symptoms of neuritis in one arm. The blood pressure dropped to 100/64. The fourth case, a nun in a convent, showed similar lack of thought and speech co-ordination and aphasia. While some of the symptoms described are considered attributable to decrease in histamine, others are definitely toxic or allergic.

The Migrainous Personality and Constitution. Alvarez, Walter, C.: Am. J. M. Sc., 213: 1, 1947.

Alvarez discusses the personal characteristics and constitutional qualities of the migrainons patient, basing his observations on the study of 500 cases. Pointing out that the headache is only one of the migrainous person's characteristics, he cites hypersensitiveness, quickness of thought and movement, the tendency to be tense, to worry, to tire easily and wilt suddenly, as frequently encountered. Such qualities as perfectionism in duties, the preference for quiet, dim lights and a dislike for crowds have occurred sufficiently often in his series to suggest their inclusion in the personality picture of the migrainous individual. He has frequently been impressed by the occurrence of spells of mild depression, apathy and a dazed, uncommunicative state of mind reminiscent of migraine without the headache. Among the married women in his series, because of the frequent spells of illness and the perfectionist demands they often make of their husbands, marital unhappiness is not infrequent.

The author, in considering the factor of allergy, believes it acts only as another trigger in setting off attacks in subjects with an inherent tendency to migraine. In the treatment of migraine the physician must bear in mind the type of personality and the stresses and strains in the patient's life and it is often only by adjustment and assistance in respect of these that progress can be made. Drug therapy alone, unless accompanied by reduction of overwork, of fretting and the stresses in the outless has frequently found in foresting.

of worrying, the author has frequently found ineffective.

The most important inference from this article is that a knowledge of and familiarity with the various features constituting the migrainous personality can be of great assistance in the diagnosis and management of migraine.

G. A. COPPING

Incidence of Acute Coronary Artery Occlusion. A Discussion of the Factors Responsible for its Increase. Walter, A. M.: Am. Heart J., 33: 135, 1947.

Heart disease is the chief cause of death in the United States, accounting (in 1942) for 28.5% of all

deaths. Coronary artery disease causes 8.5% of all deaths and is, with the exception of cancer, the most common eause of mortality. Since the U.S. Census provides no listing for acute coronary occlusion or thrombosis, the incidence of this condition has to be estimated by other means. This has been done by sampling death certificates of the State of New York and applying the figures thus derived to the whole country. It is estimated that there were 120,000 deaths from acute coronary occlusion in the U.S. in 1942. If this mortality rate for this disease is accepted as being 15%, there are approximately \$00,000 episodes of acute coronary occlusion yearly. It is further estimated that in the age group over 40 years 1 man in 40 and 1 woman in 115 have an acute coronary occlusion yearly.

The increase in the incidence of coronary artery disease and of acute coronary artery occlusion is due to (1) the lengthened span of life which between 1912 and 1944 has increased 18 years. (2) The ageing of the population is illustrated by the following set of figures. In 1900 there were \$,500,000 persons between the ages of 50 and 74; in 1940, 24,000,000 and in 1980 there will be 42,000,000. Two-thirds of the attacks of acute coronary occlusion occur in this age group. (3) Improved diagnosis and treatment; and (4) accuracy in reporting. It is thought that there is not a true increase in the incidence of coronary artery disease. A number of studies have shown that physicians are not more susceptible to the disease than are other occupational groups. Tobacco is not regarded as a factor in coronary disease. One study of 364 patients with acute coronary thrombosis showed that one-third of the men and the majority of the women were non-smokers.

As the span of life increases, the incidence of coronary disease is expected to increase and this outlook provides a strong impetus to further investigation regarding means of prevention and of cure.

A. L. Johnson

The Estimation of Prostatic Phosphatase in Serum and its Use in the Diagnosis of Prostatic Carcinoma. Herbert, F. K.: Quart. J. Med., 15: 221, 1946.

Serum acid phosphatase was studied in 87 cases of prostatic carcinoma, 95 cases of prostatic hypertrophy and in 153 cases of miscellaneous diseases. The great majority of cases of prostatic carcinoma with bone metastases showed clevated values, as did a small proportion of cases without metastasis. Minor rises occurred in a small proportion of non-prostatic diseases.

While incubation of serum for one hour at 37° C. regularly inactivates prostatic phosphatase this procedure usually does not inactivate the scrum acid phosphatase of non-prostatic disease. Exceptions, however, are sufficiently frequent to make the test unreliable.

Treatment of the serum with 2/5 volume of ethyl alcohol for one-half hour at room temperature specifically inactivates prostatic phosphatase and clearly distinguishes raised values due to prostatic disease. This test may sometimes make it possible to detect phosphatase of prostatic origin when the total acid phosphatase of the serum is not elevated.

NORMAN S. SKINNER

Cardiac Arrhythmias Complicating Total Pneumonectomy. Massie, E. and Valle, A. R.: .inn. Int. Med., 26: 231, 1947.

Arrhythmias are among the chief cardiac complications encountered following total pneumonectomy and occurred in 9.1% of the entire series of 120 patients studied and in 14.3% of those over 35 years of age. The arrhythmias included five instances of auricular fibrillation, four of auricular flutter and one each of frequent auricular and ventricular extra systoles.

Apart from the factor of age, the reason for the high incidence of arrhythmias following pneumonectomy could not be definitely determined. It is suggested that anoxamia and vagal stimulation may act synergistically in the production of these abnormal cardiae rhythms.

Constant observations must be maintained for early recognition of the occurrence of abnormal cardiac rhythms. Treatment should be directed primarily to the attainment of prompt restoration of a normal sinus rhythm, and this result may be most often accomplished by rapid intravenous digitalization.

S. R. TOWNSEND

Pleuro-pulmonary Tularæmia: Observations on Twelve Cases Treated with Streptomycin. Hunt, J. S.: Ann. Int. Med., 26: 263, 1947.

Streptomycin was used in the treatment of eleven cases of tularamic pneumonia and one case of tularamic pleurisy. The patient showed a prompt eliuical response to small doses of the antibiotic. The rapid disappearance of P. tularensis from the sputum of plcural fluid, as determined by animal inoculation, indicated that the organism was rapidly killed in the tissues. The regression of pulmonic lesions and the healing of primary ulcers were believed to have been accelerated by streptomycin treatment but required a longer time interval than did clinical recovery. In all of the patients a rise in serum agglutinin titre occurred after treatment and in certain instances was very marked and rapid. This increase in the serum agglutinin level may have resulted from the autigenic stimulus provided by the destruction of large numbers of organisms.

The incidence of tularæmic pneumonia during the period of study was striking. Because of the difficulties presented by many cases of tularamic pneumonia and the prompt response of tularæmia to streptomycin therapy, the value of a therapeutic trial with this antibiotic in severe pueumonia of undetermined origin in areas in which tularæmia is endemic is apparent. In those cases which are due to P. tularensis withholding streptomycin in order to confirm the diagnosis by laboratory methods may, on occasion, endanger life. A dosage of 1 or 2 grams daily for two days is suggested as an adequate therapeutic trial in such patients.

S. R. TOWNSEND

Surgery

Common Errors in Burn Treatment. Romence, H. L.: Am. J. Surg., 73: 340, 1947.

Burned patients should have their first treatment in the operating room where proper asepsis can be practised. Any second or third degree burn involving 10% of the body surface should be hospitalized. A sketch of the burned area is of great assistance, and the

dry pallid areas of third degree burns should be noted. There is no ideal burn remedy. Tannic acid and sulfonamides are toxic; petroleum jelly is softening. Sterile gauze, mechanics' waste and elastic bandages make a good pressure dressing. Burus are often eleansed too extensively and vigorously. Gentle washing and debridement arc indicated in grossly soiled burns only. These dressings should be changed only once in four to seven days since infection is merely spread by frequent dressings and the pain and bleeding at each dressing are very hard on the patient's morale.

Early intravenous therapy is important and plasma is the basic replacement fluid. The amount of plasma should be 100 c.c. for every point the hæmatocrit exceeds 45, or 100 c.e. for every 100,000 red cells over 5,000,000, or 2% hæmoglobin over 15 gm. %, or 300 c.e. plasma for every gm. hæmoglobin over 15 gm., or 500 c.c. per 12 hours for every 10% of body surface burned. One-third of all parenteral fluids during the first two days should be plasma. Urinary output should be maintained from the first at 60 c.c. per hour. But once 2,000 c.c. of citrated plasma is given there is danger of toxic quantities of citrate being absorbed.

Later whole blood should be given to maintain the hæmoglobin over 80%, using the external jugular or femoral veius when other veins are unavailable, Adequate ealorics, vitamins and minerals should be contained in a menu conforming to the patient's tastes. The Padgett dermatome is the greatest pain killer and lifesaver for third degree burns. Grafting should be done at the time of the 2nd dressing on about the 18th to 21st day. If lives are to be saved, deformities and severe cachexia prevented, the doctor who has a seriously burned patient under his care eannot rigidly maintain his office hours.

BURNS PLEWES

Unilateral Exophthalmos, An Early Sign in Thyrotoxicosis. Kisner, W. H. and Mahorner, H.: Surg., Gyn. & Obst., 84: 326, 1947.

The cause of exophthalmos in Graves' disease is unsettled. There is experimental work to show that it is due to the thyrotropic hormone of the anterior pituitary gland. The most frequent finding at autopsy has been hypertrophy of the extrinsic muscles of the Reports of progressive exophthalmos after thyroidectomy are contrary to the writers' experience, for if these cases are followed for weeks and months they have been found to gradually recede to normal over a period up to two years.

Five cases of thyrotoxicosis with unilateral exophthalmos are recorded. In several cases it was the first and sometimes only symptom of which the patient complained. Such cases are usually first diagnosed by the oculist. The danger of supposing that unilateral exophthalmos must be due to tumour or local inflammation is pointed out. BURNS PLEWES

Vitamin C in Gastric Resection for Peptic Ulcer. Zerbini, E. de J.: Arch. Surg., 54: 117, 1947.

The author records observations made on two vitamin C deficient patients with duodenal ulcer subjected to gastric resection. The rôle of vitamin C in wound healing has long been known and only in recent years has it been shown that the need for this vitamin is Large congreatly increased by operation or injury. centrations of ascorbic acid are mobilized in areas of injury. Large doses of vitamin C seem to have a beneficial therapeutic effect in experimental hemorrhage and traumatic shock. The first of the two patients, a male of 32 years, upon whom a gastric resection was performed for duodenal uleer, showed a complete absence of vitamin C in the blood and white cells. The report was not available before operation so no ascorbic acid was administered. During the latter part of the operation there was a progressive fall in blood pressure and evidence of peripheral vascular circulatory collapse. There was prompt improvement of shock following the injection of 2 gm. of vitamin C. The blood pressure rose and reached normal and the other evidence of circulatory impairment quickly disappeared. amounts of vitamin C were given during the next two days. He made an uneventful recovery.

The second patient was a male of 42 years, who developed pneumonia following gastric resection. He responded to chemotherapy. Removal of the skin sutures was followed by a gaping wound, which gradually filled in and healed by secondary intention. This ease showed that a daily dose of 200 mgm, of vitamin C after operation did not prevent a total disappearance of the vitamin from the plasma, even though the tissues had apparently been saturated thoroughly before operation. This was presumably aggravated by the postoperative pneumonia. Again there was the obvious failure of wound healing even though the concentration in the white eells remained high. This would suggest that a low or zero level of plasma ascorbic acid should not be looked on as harmless and that a suggest that a looked on as harmless and that the suggest that a sug looked on as harmless and that a sufficient amount should be given after operation in order to maintain a high plasma level. As a result of this experience, the author gives at least 1 gm. of ascorbic acid as routine following G. E. LEARMONTH gastric resection.

Plastic Surgery

· Reconstruction of Orbital Floor Defects. Sherman, A. E.: Surg., Gyn. & Obst., 84: 4A, 799.

Fracture of the floor of the orbit with downward displacement may result in displacement of the globe, with diplopia, enophthalmos, and infraorbital ancesthesia resulting. Such fractures should be dealt with early and usually they are best reduced by a transantral approach, following which reduction can be maintained

by packing the antrum.

In neglected fractures the position of the fragments cannot be corrected. Improvement has been brought about by elevating the orbital contents. For this purpose varions implants have been used including grafts of bone or cartilage, the latter fresh or preserved; tanta-lum and glass wool and moulds of plastic materials. The latter are used by this author, the mould being inserted beneath the orbital periosteum. For repair of loss of the bony orbital margins, blocks of iliac bone are used consisting almost entirely of cancellous bone. L. T. BARCLAY

Cancellous Bone Grafts to the Jaw. Blocker, T. G. Jr.: Surg., Gyn. & Obst., 84: 4A, 553.

Bone grafts to the mandible are required in civilian practice as a result of surgery of malignancy, infection or trauma. They are required rather commonly in war surgery following wounds by bullets and shell fragments. The resultant cosmetic defect in either case is secondary in importance to disturbance of speech and impairment of mastication and deglutation.

Mandibular bone grafts were first employed in World War I by French, English-American groups of surgeons with perhaps a thousand cases reported and using bone from a variety of sources. During recent years the use of iliac grafts has been the method of choice. This author prefers a block of pure cancellous iliac bone supplemented by chips. The importance of firm fixation which does not depend on the graft for assistance in any degree, adequate non-scarred soft tissue coverage, and absence of infection and con-tamination is stressed. Various types of fixation are outlined with preference given to cast-cap sectional splints with lock bar if enough teeth are available.

Details of operative and postoperative treatment are described. The choice of anæsthesia is local block with novocaine and spinal anæsthesia for removal of

the graft.

Sixty-eight mandibular bone grafts were done on 66 patients with generally good results, and 25 other iliac grafts were done for restoration of contour in various parts of the face. Bone graft was not done until two months after last drainage.

L. T. BARCLAY

Obstetrics and Gynæcology

A Case of Intersexuality: Clinical and Hormonal Study. Hain, A. M. and Schofield: J. Obst. & Gyn. Brit. Emp., 54: 97, 1947.

A male pseudohermaphrodite, aged 14. is described. It was possible by estimation of the excretion of 17-ketosteroids (urinary androgens) to distinguish between male and female pseudohermaphroditism and so to exclude adrenal cortical hyperfunction.

An excessive excretion of goodstrophin (F.S.H.).

An excessive excretion of gonadotrophin (F.S.H.), typical of cryptorchidism, was an outstanding feature and demonstrated that the pituitary secretes, and is itself under gonadal influence, before puberty. The probable origin of the developmental defect is discussed. The question of procedure to be adopted by the surgeon in such cases is debated. P. J. KEARNS

Effects of Exercises on Childbearing. Rodway, H. E.: J. Obst. & Gyn. Brit. Emp., 54: 77, 1947.

An analytic study has been made of the obstetric case notes of 340 primiparous women who had received instruction in maternity exercises and of a compara-

tive group of controls. This detailed study has not revealed any appreciable difference between the exercise and control groups for the type of labour, presentation, average duration of labour, for postpartum hæmorrhage and perineal lacerations, for the average weight of infants and infant mortality rates. There is no indication from this analysis that labour was less painful for the exercise cases than for the control. It appears that the infrequency of the instruction and the lack of supervision in labour by a trained instructress lessened the value of the antenatal training. More trained persons are needed before the value of maternity exercises in preparation for childbirth can be properly assessed. This aspect of antenatal work can only be fully developed when all midwives and pupil midwives are trained in the principles of the exercises, understand the objects of their practice and encourage the patient to carry them out during P. J. KEARNS pregnancy and labour.

Endocrine Allergy. Zondek, B. and Bromberg, Y. M.: J. Obst. & Gyn. Brit. Emp., 54: 1, 1947.

Sixty-six cases in which sensitivity towards endogenous hormones gave risc to various pathological manifestations are reported. Hormonal allergy was detected by skin tests with oily hormone solutions injected into a layer of the epidermis deeper than that used for ordinary skin tests with aqueous solutions. In healthy women endocrine allergic conditions of this nature were never enconntered at any phase of the sexual cycle. Endocrine allergic conditions are not frequent. have a considerable rate of incidence, however, in disturbances related to menstruation or menopanse. Clinical manifestations of "endocrine allergy" as so far encountered have been divided according to the organs thus involved. The possible clinical involvement in such cases of the respiratory, cutaneous, nervous, genital and ocular systems is illustrated.

The following ailments have been identified as due in certain cases to "endocrine allergy". (a) Respiratory tract: asthma and vasomotor rhinitis. (b) Cutaneous system: angioneurotic ædema, chronic urticaria and acne. (c) Nervous system: migraine. (d) Genital system: premenstrual tension and pruritus vulve. (e) Digestive system: nausea, vomiting, diarrhea and epi-gastric pains during the premenstrual phase. (f) Ocular system: chronic, recurrent conjunctivitis and certain forms of keratitis (such as superficial keratitis

and keratitis rosacea).

The following 4 methods of treatment for endocrine allergy are proposed: (a) Descriptization by the subcutaneous injection of the hormonal allergen in question in a series of doses of gradually increasing size. (b) Desensitization by the "depot method" involving the implantation of hormone-pellets. This method is apimplantation of hormone-pellets. This method is applied after it has been advanced to a point at which the patient can already tolerate a fairly high dose of the hormone in question. (c) Desensitization by per-cutaneous treatment with hormone ointment. (d) Elimination of the allergenic hormone from the body by the inhibition of the gonadotrophic hypophyseal function with large doses of estrogens or androgens. In 47 cases of endocrine allergy treated by specific desensitiza-tion the following results were obtained: complete recovery in 51%. improvement in 28%, and negative results in 21%. In 2 cases the allergenic hormone was eliminated by the inhibitory effect of high doses of tostesterone on pituitary secretion.

P. J. Kearns

Fibroids in Pregnancy. Buckell, E. W. C.: J. Obst. & Gyn. Brit. Emp., 54: 70, 1947.

In this paper 122 cases of fibroids in pregnancy have been described and their complications compared with those found by other observers. Of the 113 patients who were looked after by the hospital, 79 only had healthy children. A large number aborted (1457) and the fetal and neonatal death-rate was 11.1%. The frequency of complications in pregnancy, labour and pucrperium, and the high fetal and maternal death-rate show that the presence of fibroids is a serious complication. Red degeneration during pregnancy should be treated conservatively and myomeetomy should, if possible, be avoided. Casarean section will usually secure a living child, and it should be seriously considered in all elderly primigravidae and all other patients where there is an additional complication.

P. J. Kearns

Pædiatrics

Congenital Deafness and Other Defects Following German Measles in the Mother. Hopkins, L. A.: Am. J. Dis. Child., 72: 400, 1946.

Ten deaf children whose mothers had German measles during pregnancy were examined in the Clarke School for the deaf at Northampton, Massaehusetts. Some of these children showed other eongenital defects. It was suggested that rubella, occurring early in pregnancy, may be the cause of certain eases of eongenital deafness, that had formerly been unexplained.

Two eases in which the mothers' did not have German measles, but had had another virus disease, namely influenza, and six cases in which the mother did not have a virus disease during pregnancy, but in which the child presented some of the same congenital defects are listed.

This is an interesting paper indicating as has been done by others what a serious thing German measles in a pregnant mother can be for the fetus.

PRESTON ROBB

Speech Therapy for Children with Cerebral Palsy. Perlstein, M. A. and Shere, M.: Am. J. Dis. Child., 72: 389, 1946.

It has been estimated that 55% of all children with cerebral palsy have speech defects, and from 50 to 75% of these can be benefited by speech training. The purpose of this article was to comment on the various types of speech defects seen in children with cerebral palsy, and to outline the method of treatment. Patients who were mentally deficient and in whom there was uo hope of help by training were excluded. However, it was pointed out that psychological testing in these patients is very difficult and is likely to be deceptive. All patients should have diagnostic physical examinations, neurological, orthopædic and pædiatric examinations. Visual, auditory and speech tests should be done.

One of the fundamental things in the treatment of these speech defects is to teach the patient how to relax. Various methods are clearly outlined. The importance of proper breathing is stressed. The necessary equipment for these speech therapy rooms for this type of patient was outlined. It is important in treating the speech defects of these patients to co-ordinate it with other forms of therapy, such as physiotherapy, occupational therapy and when the child is old enough school.

This is a very useful article in helping to understand what the speech therapists attempt to do with the problem of the spastic child and how it is done.

J. PRESTON ROBB

Anæsthesia

New Synthetic Curarizing Agent in Anæsthesia. Malliuson, F.B.: The Laneet, p. 98, Jan. 18, 1947.

The author has undertaken the elinical trial of a synthetic drug B.D.H. 312, developed by the British Drug Houses Ltd., and said to have an action resembling that of curare and of possible value in anæsthesia. The results in the first 112 cases have been so striking that he feels that he should submit this preliminary report, to encourage comparison with the now accepted preparations of curare and to stimulate further research into its potentialities.

further research into its potentialities.

Myanesin or B.D.H. 312, is a synthetic substance having the formula a:β-diliydroxy-y (2-methylphenoxy) propane. It is put up as a solution in ampoules containing 1 gram in 10 c.c. The solution may be boiled

and possesses antibacterial properties. Solutions of pentothal sodium and myanesin may be mixed without the formation of a precipitate. The pharmaeology has been thoroughly investigated in animals by Berger and Bradley. In therapeutie doses it has no evidence of toxic effects on any organ of the body. It produces relaxation without nareosis in conscious patients. The addition of a small dose of pentothal produces narcosis accompanied by good abdominal relaxation. The dosage used was 13 mgm. per kg. of body-weight.

dosage used was 13 mgm. per kg. of body-weight. In elinical use premedication is desirable but not essential. After anæsthesia has been established an injection of 5 to 10 c.e. of myanesin is made intravenously a few seconds before the peritoneum is opened. Full relaxation follows in a few seconds. Doses of 5 to 10 c.e. may be repeated as often as required during long operations. As much as 50 e.c. have been given without ill effect. Intereostal paralysis is rarely if ever produced. Myanesin was employed in the following anæsthetic combinations; pentothal-N₂O-O₂, pentothal-eyelopropane, pentothal-N₂O-O₂-ether and N₂O-O₂-ether. There is no significant alteration in the blood pressure and but slight effect on the tonus and contraction of the intestinal muscle. It has a relaxing effect in spasm of the vocal cords.

In conclusion it may be stated that myanesin ap-

In conclusion it may be stated that myanesin appears to have well-marked advantage over curare. It has a wider margin of safety than curare. Abdominal relaxation is obtainable even in the conscious patient and without any distress. The drug does not cause intercostal paralysis in doses producing full relaxation of the abdominal muscles. It would appear to potentiate the action of the barbiturate and allows the least toxic anæsthetic agents to be used, such as pentothal and nitrous oxide combination, to obtain adequate anæsthesia and relaxation for abdominal surgery.

F. Arthur H. Wilkinson

Dermatology

The Treatment of Gold Dermatitides. Raglan. C. and Boots, R. H.: J. Am. M. Ass., 133: 752, 1947. Certain toxic manifestations, notably the dermatitides,

Certain toxic manifestations, notably the dermatitides, have been a serious deterrent to the use of gold in rheumatoid arthritis. No known clinical or laboratory methods give warning of its occurrence. The arrest of the pruritus and favourable influence on the toxic reactions have been found possible in certain eases by the use of BAL (2, 3-dimercaptopropanol). It is thought that the toxic effects of trivalent arsenical compounds are due to the inactivation by arsenic of the sulfhydryl group in enzyme proteins, and BAL successfully competes with these for arsenic which it binds rapidly. It must be employed early after the arsenic-sulfhydryl combination has occurred, otherwise the effect of the metal on the enzyme becomes irreversible. A similar reaction occurs in other heavy metal poisoning such as with mercury and trials on 5 patients with gold poisoning showed definite increase in the urinary gold exerction coincident with the BAL treatment and clinical improvement.

The authors received the impression that the administration of BAL to patients with rheumatoid arthritis in remission following chrysotherapy may eause early relapse. This would suggest that the therapeutic effect of gold is a temporary suppression of the processes which cause activity in rheumatoid arthritis.

D. E. H. CLEVELAND

Rickettsialpox—A Newly Recognized Rickettsial Disease. Greenberg, M., Pellitteri, O., Klein, I. F. and Hnebner, R. J.: J. Am. M. Ass., 133: 901, 1947.

This is a report on the elinical findings based on the observation of 144 non-fatal cases observed in New York in 1946. The etiology, epidemiology and method of transmission of the disease have been considered in other papers, all emanating from the Bureau of Preventable Diseases, New York City Department of Health. The name Rickettsia akari has been proposed for the eausative organism.

The prominent characteristics are an abrupt febrile onset with chills, preceded by a primary lesion on the skin and followed by a rash. The primary lesion is a firm red papule in the centre of which develops a deep seated firm vesicle. - It is from 0.5 to 1.5 cm. in diameter. The vesicle dries into a firm black eschar and terminates in about 3 weeks with a small scar. The lesion is neither painful nor itchy. There is usually regional lymphadenitis. About a week after the appearance of the primary lesion fever, chills, sweats, backache and lassitude follow. The fever rises to 103 or 104° and lasts from 2 to 10 days. A rash composed of discrete maculopapular erythematous elements appears at the onset of the fever or 1 or 2 days later. In the develop ment of a central firm deep-seated vesicle followed by a black crust the lesions resemble the primary one, but are smaller and leave no sear. The rash is non pruritic and has no characteristic distribution. It spares the palms and soles and may appear on the mucous menibranes. Its duration is from 2 to 10 days. Other physical signs are generally absent and the patient does not appear to be acutely ill. A leukopenia was often observed, with occasionally a relative lymphocytosis. In the few cases tested the sedimentation rate was normal or but slightly elevated. Other routine laboratory tests were generally negative, as were also the usual bacterial agglutination tests. Identical strains of rickettsias were isolated from the blood of two patients and from mouse ectoparasites (Allodermanyssus sanguineus) which establishes the etiology and strongly indicates the method of transmission. The complement fixation test using antigens prepared from the causative organisms is of diagnostic value.

D. E. H. CLEVELAND

Pathology

Effects of Radioactive Phosphorus (P32) on Normal Tissues. Platt, W. R.: Arch. Path., 43: 1, 1947.

The author reports histologie changes observed in patients suffering from malignant lymphomas treated with radioactive phosphorus. The preparation and use of P32 is outlined. In leukæmic patients the blood cells were restored and maintained as nearly normal as possible and in other conditions radioactive phosphorus was given until peripheral blood changes in-dicated bone marrow depression.

Characteristic changes are produced in many tissues of the body similar to those observed following rochtgen radiation. Specific changes include cellular death, abnormal mitoses producing atypical giant cells, fibrosis, hyalinization of collagen and thickening and hyalinization of small blood vessels.

Radioactive phosphorus, with its steady irradiation of tissues for several weeks, may produce more diffuse cellular changes than those produced by local application of radium or roentgen radiation. Selective localization in bone marrow, liver, spleen and lymph nodes well as increased uptake of P³² by rapidly prohferating cells, leads to increased radioactivity and injury in those tissues preferentially involved in malignant lymphomas and polycythæmia vera. Normal tissues are, however, affected as well. Urinary excretion of radioactive phosphorus leads to continued exposure of the renal parenchyma, and possible renal damage should be horne in mind in the treatment of patients with relatively long life expectancy. Depression of reproductive function is another factor to be seriously considered in the treatment with radio-R. C. Ross active phosphorus of young patients.

Industrial Medicine

Essential Safeguards in Production and Use of Atomic Energy. Wirth, J. E.: Occup. Med., 2: 428, 1946.

The production and use of atomic energy have brought about hazards previously encountered only to a limited extent in the radium industry, the roentgenologic field, and in certain research laboratories. In this article the author discusses the essential safe-

guards which must be considered, wherever this work is performed, for the protection of personnel in the working area and, for the protection of the surrounding community. The primary concern is with prevention of damage to human beings from the immediate and from the long time or delayed effects. The safeguards are discussed in detail as they relate to personnel, monitoring ("the detection, quantitative determination and prevention of radioactive hazards from doing damage"), equipment, and laboratory facilities for special tests.

Few persons have had adequate experience or training in the handling of radioactive materials. It is therefore essential that a well-organized educational program be arranged for all personnel to instruct them thoroughly in the rules and procedures involved. Reference is made to one safety manual which deals with this subject; it includes information on toleranees, radiation monitoring, protective elothing and devices, eating and smoking rules, contamination of persons, contamination of areas, storage handling and disposal of radioactive materials, and, enforcement of

A separate "health-physics" unit to handle the monitoring has proved successful. In the opinion of the author this group can act either independently or in co-operation with the medical, safety, operating and research departments. An organization chart of such a group illustrating its functions, is shown.

The necessary facilities to monitor are an important consideration. They include personnel-monitoring meters which are used to detect radiations received by a person, and survey instruments, used to determine radiations in work areas. Barriers are necessary in all work with radioactive materials. Of equal importance are ventilation facilities, protective clothing and handling devices. Details are given as to varieties and use.

In spite of safeguards some persons will get dangerous amounts of direct radiation or will acquire damaging quantities of radioactive elements in their systems. This must be detected in order to prevent a person from accumulating still more in his system, he should be removed from the job at fault. In order to know when those with lesser amounts have arrived at the stage requiring a change of job, well-trained personnel are required, together with laboratory facilities for special tests of blood, sputum, expired air, urine and stools for alpha, beta and gamma emitters as well as for chemi-MARGARFT H. WILTON cally toxic substances.

Tropical Diseases in Industry. Bercovitz, Z. T.: Indust. Med., 16: 45, 1947.

That, in general, returning veterans with tropical discases, do not constitute any greater risk to the corporation as permanent liability, than the average employee, is the opinion of the author of this article. lie maintains that, provided they are under supervision and the industrial physician is alert to the development of recurrences of infection, the danger to fellow workers in office or factory is negligible.

The attitude towards these men is important. They have been under great strain; their period of adjust-ment may be prolonged. Their rehabilitation is largely the responsibility of the industrial physician who must be propared to handle them with common sense coupled with sympathy and understanding. In addition to true symptoms of complications he will encounter recurrences of symptoms related rather to worry and concern than

to actual infection.

The author discusses from a practical standpoint, the diagnosis and treatment of those tropical diseases most likely to confront the industrial physician. These are amæbic and bacillary dysentery, malaria, and conditions due to helminths. Symptomatology, diagnosis, treatment and complications are presented in detail. A table is included to show the drugs and dosages commonly employed in the treatment of amobic dysentery and its complications; another gives drugs used in treatment of intestinal helminths. MARGARET H. WILTON

OBITUARIES

Dr. Malcolm Alexander Carmichael, Regina district chief medical officer of the department of veteraus affairs, died on April 14, in a Regina Hospital. Dr. Carmichael was born in Cape Breton in 1881. He graduated in medicine from Queen's University in 1908 and registered with the College of Physicians and Surgeons of Saskatehewan in 1912. Dr. Carmichael served with the R.C.A.M.C. from 1916 to 1919, when he returned to Strasbourg, Sask. He practised there and in Regina until 1928 when he received appointment to the department of pensions and national health, in 1943 being appointed to the department of veterans affairs. Surviving him is an only son, John A., of Regina.

Dr. Frank W. Crang, died April 3, in Edmonton. He was 77 years of age. He was born in Toronto in 1870 and received his early schooling there.

He graduated in medicine from McGill University, in 1901, and immediately thereafter came to Edmonton,

and commenced his medical practice.

He was a member of the school board for about 25 years, during which time he took a deep interest in sports events of the city. He was on the boxing and wrestling commission for a number of years, but was forced to relinquish these posts in 1940 due to ill health. He retired from medical practice about three years ago.

He is survived by his widow, three sons and two

daughters.

Dr. Edmund Gazelet Feilde, died on April 26. He was in his 88th year.

Dr. Feilde was born in Prescott, Ont. He graduated in medicine from McGill University in 1881 and practised in Prescott until 1896 when he returned to Montreal.

He was chief medical officer for the Canadian Car and Foundry Company from the firm's founding in 1909

until his retirement in 1943.

Dr. Feilde was president of the St. John Ambulance Association for the Province of Quebee. In recognition of his work, he was invested with the order of Officer of the Venerable Order of St. John of Jerusalem.

He is survived by two daughters and a son.

Dr. Alison Jamieson died suddenly at Wicklow, Out., on May 2. She was in her 77th year. She graduated in medicine from Queen's University in 1892.

Dr. Samuel Johnston died at his home in Toronto on April 14, 1947. He was in his 79th year.

Dr. Johnston was born in Erin, Ontario, the son of Samuel and Elizabeth Glenn Johnston. He was educated in the local school and the Collegiate Institute in Guelph. He entered Trinity University in 1897, and did the amazing feat of graduating M.A., M.D. and C.M. in four years. After an internship in the Toronto General Hospital, he began general practice on Carlton Street, He became adept in the giving of anasthetics, and, in 1910, he went abroad to study this art, which was being practised as a specialty by a few pioneers. On his return to Toronto, he devoted all his attention to the teaching and practice of anæsthesia. He acquired distinction in this field, and was a past president of the American Association of Anæsthetists, and first president of the Canadian Society. He was chairman of the Section of Anæsthesia of the British Medical Association at the Nottingham meeting of 1926.

Dr. Johnston was a Charter Fellow of the Academy, and was President in 1942-43. He was a past president of the Academy of the Academy of the Academy of the Academy.

of the Aesculapian Club, and a member of the Rotary and Empire Clubs. He was a member of Westminster Central United Church, and of Ionic Lodge A.F. & A.M. In 1904, Dr. Johnston married Dr. Margaret Macallum. who continued to practise for a number of years, and

now survives him.

Dr. Johnston is mourned by a host of friends among the medical profession. He broke new ground in the field of medicine, and cultivated it well. He served his generation faithfully, and the foundation stones of the new edifice of Aussthiology indelibly bears his mark.

ANJESTHESIA

Shumber of man's contriving, Deep, secure, Pain of its prey depriving, Dreamless, sure.

Grace to the minds that fashion Such release! Lily of man's compassion, White sureease.

Catherine Ames Clinedinst

Dr. Robert Tarzwell Lane, aged 72, medical practitioner for more than 35 years in Sault Ste. Marie, died suddenly on April 4. Until three years ago, Dr. Lane had specialized in surgery. He was formerly on the staff of the Sault Ste. Marie Hospital.

Born in Erin Township he attended high school in Orangeville. A teacher for some years, he was principal for a time of Sault Ste. Marie Public School prior to entering university to study medicine. Dr. Lane was a graduate of the University of Toronto

about 1910.

He had been prominent in the United Church, the Masonie Order and the Shrine.

Surviving are his widow, three sons, one daughter and three sisters.

Dr Louis-Philippe Legendre, est décédé le 24 mars à Ste-Croix, où il avait passé la plus grande partie de

ln vie. Il était âgé de 81 ans.

Né à Ste-Croix, en 1866, après de brillantes études an Séminaire de Québec et à l'université Laval, il fut reçu médecin en 1889. Il pratiqua son art jusqu'en 1910, date à laquelle il fut nommé registrateur conjoint avec M. J.-A. Auger, poste qu'il occupa jusqu'en 1946.

Maire de son village, le Dr Legendre s'occupa

activement au développement de sa paroisse. Outre son épouse, il laisse une fille et deux sœurs.

Dr. Henry M. McFadden, aged 64, of Thorndale. Ont., died of a heart attack on April 12.

Dr. McFadden had practised at Thorndale for 40 years. He was a graduate of medicine from the University of Toronto in 1907. For many years he had been medical health officer for West Nissouri Township.

Surviving besides his widow, are one doughter, and

one son.

Dr. Ralph Graham Martin, aged 42, died on April 14 at his home in Calgary. He was born in Moose Jaw. Sask., where he received his public and high school education. He attended the Moose Jaw College and the University of Saskatchewan in Saskatoon. In 1928 he moved to Edmonton to attend the University of Alberta. He graduated in 1933

Dr. Martin was a member of the Alberta Medical Association, the Calgary Medical Association, the Calgary Sketch Club and the Zeta Psi fraternity. He was also a member of the United Church. While at university he was well-known in athletic circles, having been active in hockey, rugby and basketball. Surviving are his widow, one son, and one sister.

Dr. E. L. Proctor died on April 19 in his 81st year in the Oshawa General Hospital.

Born in Yorkshire, Eng., he practised medicine in the Port Perry, Whitby and Oshawa district for the past 50 years. He graduated as a medical doctor in this country

after leaving England as a young man. He retired in 1938 and moved to Toronto. He is survived by his widow and his daughter.

Dr. Allison Rolls, Toronto physician, died on April 5 at his home, at the age of 67. Born in Chatham, he attended Ridley College and Brautford Collegiate. He

graduated in medicine from the University of Toronto in 1905 and did postgraduate work in London, England. There he obtained the degree of member of the Royal College of Surgeons and licentiate of the Royal College of Physicians.

Dr. Rolls served two years with a medical mission on the west coast of British Columbia. He moved to

Woodbridge and later to Toronto in 1914.

A member of St. Clair Ave. United Church, he was for many years associated with the local Chinese Mission. Dr. Rolls was a member of the Oakwood Club, the Odd-fellows and the Orange Order. Surviving are his widow, a daughter and two sons.

Dr. Warren C. Ryckman died on April 12 at the Hamilton General Hospital following a short illness.

Dr. Ryckman was born at the old Ryckman family homestead near Rock Chapel, Chappison Corners, 70 years He received his education from the Waterdown High School and the University of Toronto, graduating from medical school in 1907.

Before attending medical school he taught school in Alberta for, a short period. Dr. Ryckman's first practice was in Flesherton, Ont. He was a member of the Ryerson United Church, Acacia Lodge No. 61, A.F. & A.M., and the Hamilton Sovereign Chapter of Rose Croix.

Surviving are his widow, one son and one brother.

Dr. Walter Scatchard, of Chase, B.C., died at his

home there April 13.

Born in Yorkshire, England, in January, 1861, Dr. Scatchard obtained his M.D. degree at London University. He became a member of the Royal College of Surgeons in 1882, and in 1892 a licentiate of the Royal College of Physicians of Ireland and of Midwifery. He was for some time house surgeon of Leeds hospital in Yorkshire. He came to Canada in 1907 and settled at Armstrong, B.C. where he practised until 1910 when he moved to Chase, which town was then in the making. Besides his general practice, he was company physician and surgeon for the Adams River Lumber Co. Ltd., and also was the doctor for the Adams, Squilax, Chase and Shuswap Indian reservatious.

An ardent hunter and fisherman, Dr. Scatchard was a noted "wing shot". A couple of years ago the octogenarian brought down 13 ducks with 11 shells. It was seldom he did not make every shot count. But perhaps his greatest thrill in the out-of-doors was when he landed a 19 pound trout after a two-hour struggle in Adams river. The kill was made with a 9-ounce rod and light

fly-fishing tackle.

He is survived by his daughter and four sons,

Dr. William John Stevenson. A colourful figure in Canadian medicine came to his death in his 75th year on April 11, 1947, in the person of Dr. W. J. Stevenson,

of London, Ontario.

Dr. Stevenson was the third son of Dr. Hugh Stevenson and the former Margaret McConnell, who came to Canada from Roxborough, Scotland. He was educated in London, and received his degree in medicine from the University of Western Ontario in 1896, after graduating M.D., C.M. from Trinity University in the same year. In 1946 the University of Toronto gave him an M.D. degree.

Dr. Stevenson was surgeon to the Ontario Hospital, Victoria and St. Joseph's Hospitals, and for many years associate professor of gynacology in the University of Western Ontario. He was also a member of the senate in the university for a score of years. Last year he gave the university seventy five thousand dollars towards the building fund for a medical library, Recently the London Academy of Medicine had Dr. Stevenson's portrait painted by Edward Glenn, and this will be hung in the new medical library.

Dr. Stevenson had many interests. He was a

naturalist and a politician, and had travelled extensively. He had done postgraduate study at different times, in Great Britain, Europe and the United States. He was a Life Non-Resident Fellow of the Academy of Medicine, Toronto, and well known to members of the medical profession in Toronto.

Dr. Valerian Swencisky, former resident of New Westminster, B.C., died suddenly on April 20 in Lethbridge, Alta., where he resided for the past fifteen years. Born in Vancouver, he was 53 years of age. He attended New Westminster high school and graduated in medicine from McGill University, Montreal. Surviving him, besides his parents, are his widow, one daughter, one brother, and four sisters.

NEWS ITEMS

Alberta

Commencing June 1, 1947, old age pensioners. blind pensioners, recipients of mothers' allowance and the dependents of each, are to receive full medical and surgical care, the cost of which is being met by the Provincial Government. An arrangement has been made whereby the Government pays a sum of money to the College of Physicians and Surgeons who will administer the fund. Doctors' accounts are to be submitted to the Registrar in accordance with the schedule of fees. It is expected for the year of 1947 that 75% of the accounts will be paid.

The following new registrants were approved by the Council: Edward Hugh Jackson Smyth, Calgary, Alta .: Council: Edward Hugh Jackson Smyth, Calgary, Alta.: Huxley Harold Cove Johnson, Calgary. Alta.: John Douglas Birrell, Calgary, Alta.; Allan Bryan Cafferky, Port Hueneme, Cal.: Arthur Paul Carman Clark, Calgary. Alta.; Carl Heinz Walter Calm, Londou, Eng.; Norman Bertrand Hirt, Canmore. Alta.; Irving Lipton, Taber. Alta.; John Paul Drouin, St. Paul, Alta.; Donald Grant McAlpine, Edmonton, Alta.; Chapin Key, Edmouton, Alta.; Bernard Adilman, Saskatoon, Sask.; John Fergus McKenna. Phoenix, Ariz.; Leonard Joseph Patterson, Didsbury. Phoenix, Ariz.; Leonard Joseph Patterson, Didsbury. Alta.; Jack Graham Hardman, Vulcan, Alta.

A new schedule of fees for general practice has been approved and will go into effect as soon as it is distributed to the medical men in the Province.

The Vegreville District Medical Society No. 9, met in Vancouver on April 9. Dr. J. W. Bawden who is assistant to Dr. A. W. Blair, Director of the Cancer Clinic at Regina, was the main speaker. Dr. O. Rostrup of Edmonton, presented a short paper.

A contract has been awarded for construction of a three hundred thousand dollar hospital extension at Camrose. This hospital is operated by the Sisters of Providence. This extension will increase the capacity to more than one hundred beds.

At the annual meeting of the Calgary Medical Society held on April 15, 1947, the following officers were elected for the ensuing year: President—Dr. H. V. Morgan; Vice-president—Dr. R. C. Riley: Treasurer—Dr. J. V. Follett; Secretary—Dr. L. M. Fairbairn, Librarian—Dr. R. R. Hughes: Executive Committee— Dr. W. S. Johns, Dr. W. R. Dunlop, Dr. T. Melling, G. E. LEARMONTH

New Brunswick

At the monthly staff meeting of the D.V.A., at Lancaster in April. Dr. L. R. Morse, staff urologist, discussed metastatic bone disease, secondary to carcinoma of the prostate.

Dr. W. A. Farrell, radiologist, presented a case of Paget's disease. Discussion in both cases was introduced by Dr. E. A. Petrie, of St. Joseph's Hospital. Reports of nicotine poisoning are expected in medical circles in New Brunswiek. This fear is based on the supply of free eigars being distributed by proud papas in celebration of the arrival of an extra large crop of babies in families of duly registered and licensed physicians practising in this the winter sunshine Province of Canada. No multiple births have been uoted.

The spring meeting of the Medical Council of New Brunswick was held in Saint John on April 11th. Dr. R. W. L. Earle, of Perth, presided. Dr. J. M. Barry, the registrar, reported on eurrent correspondence and noted a continued registration of physicians beginning practise in the Province.

The newspapers report an increasing interest in the pasteurization of milk. This news is apparent in reports of organizations of all types, forwarding recommendation to the health department advocating a Provincial law to provide compulsory pasteurization of all fluid milk used in the Province.

Hon. F. A. McGrand, Minister of Health for New Brunswick, in commending the work of the N.B. Branch of the Canadian Cancer Society, stated that the government was establishing a chain of cancer diagnostic centres in the Province, where the necessary special examinations may be carried out at department expense. No means test will be applied. The question of qualified medical personnel is a problem in some centres. The provision of scholarships for doctors desiring to specialize in eancer treatment in New Brunswick is a feature of the present program of the local cancer society.

At the annual meeting of the Fredericton Rotary Club, Dr. J. Storey Hynes was elected president.

Dr. T. H. Coffee, D.V.A., adviser in Physical Medicine was the guest speaker at the monthly meeting of the Saint John Medical Society in April. His subject was "Physical Medicine and Rehabilitation". Illustrated by moving pictures, the address was most interesting and the question and answer period was as usual much enjoyed. Dr. Coffey was a welcome visitor to Saint John. where he has an unusual number of friends, even for Dr. Coffey, who has friends everywhere.

Dr. A. B. Walter, chief in Mcdicine at Lancaster D.V.A. Hospital, has been appointed by Veterans' Minister, Hon. Ian MacKenzie, as a member of a supervisory committee to administer the use of streptomyein in D.V.A. treatment centres.

A. STANLEY KIRKLAND

Nova Scotia

On April 23, Dr. John George MacDougall of Halifax was tendered a banquet at the Nova Scotian Hotel to celebrate his Golden Jubilee as a physician. Graduating from McGill in 1897, winner of the Holmes Gold Mcdal, he interned at the Royal Victoria Hospital and later began practice at Amherst, Nova Scotia. After postgraduate work abroad he eame to Halifax in 1914 and established himself as a surgeon. His reputation spread far beyond the borders of his native Province. Some years ago he retired as a surgeon from the Victoria General Hospital, but still retains his connection with the Dalhousie Medical School. He has been President of the Provincial Medical Board for twenty-five years and has wide business interests.

Nearly ninety physicians joined in congratulating Dr. MacDougall on this happy occasion. The toast to him was proposed by Dr. H. L. Scammell: Then followed Dr. Kenneth A. Mackenzie who read an illuminated address formally presented to Dr. MacDougall by Dr. J. C. Acker. President of the Halifax Medical Society. A glowing *ribute to his work and worth was paid him

in an address by Dr. C. S. Morton, an associate of many years. Doctors H. K. MacDonald, G. H. Murphy, and M. G. Burris also added words of appreciation. Congratulatious came from the Canadian Medical Association of which he is a life member, the Royal College of Surgeons of Canada and the American College of Surgeons of which he is a Fellow. Numbered among those present were many of his former House Surgeons. It will be an occasion long remembered as a fitting tribute to one of the most highly regarded professional men of Nova Scotia as well as one of its most honoured citizens.

Dr. Peter D. Ferguson has established himself at Whycocomagh in the practice left vacant by the sudden death of Dr. M. G. MacLeod a few weeks ago.

Under the chairmanship of Dr. A. E. Kerr, President of Dalhonsie University, a Committee known as the Dalhonsie Committee on Caneer Research has been set up in Nova Scotia. Its purpose is to foster cancer research and in this regard it will co-ordinate its efforts with the National Institute of Caneer Research. Already several projects have been reviewed, endorsed, and forwarded to the Institute. If approved the work entailed will be carried out within the University. The committee has a strongly representative personnel. Its secretary is Dr. H. L. Scammell.

Dr. Maurice Fitzgerald has started to practice in New Glasgow, N.S.

Dr. L. M. Zinck who graduated from Dalhousie Medical School in 1924 and who since that time has practised in England was a recent visitor in Nova Scotia and attended the banquet for Dr. MacDongall. He is a native of Lunenburg.

H. L. SCAMMELL

Ontario

The semiannual meeting of the College of Physicians and Surgeons of Ontario was held early in April. Dr. George Ramsay of London was re-elected as president which is an unusual event but is recognition of the good service Dr. Ramsay has given during this year of office. There were no serious eases before the Discipline Committee but two or three minor offenders received admonishment. The registration of specialists qualified by certificates from the Royal College of Physicians and Surgeons of Canada now includes the names of all persons recommended for registration without examination. As from January 1, 1947 the Royal College will issue certificates only after examination and the presentation of such certificates are required for registration in Ontario.

The University of Western Ontario has announced the appointment of Professor J. B. Collip as Dean of the Faculty of Medicine. It would take more space than is proper to a news item to describe the attainments of this internationally known scientist. He leaves the Chair of Biochemistry in McGill University to assume his new duties in London. The U.W.O. is to be congratulated on this latest acquisition to its Faculty of Medicine which has been signally strengthened in the past few years under the Deanship of Dr. G. E. Hall. Dr. Hall has succeeded to the Presidency of the University and his appointment adds still more to the prestige of the University of Western Ontario as a centre of medical education.

Dr. H. W. Wookey of Toronto has been honoured by the appointment by the Royal College of Surgeons of England as Hunterian Professor for 1947. This is the third time in recent years that the annual oration in memory of John Hunter has been given by a member of the Faculty of Medicine, University of Toronto. It is a distinction that reflects the high attainment of Dr.

Wookey and the standards of surgical practice in Canadian hospitals.

Dr. George E. Wilson surgeon in chief to St. Michael's Hospital has been seriously sick in Pinehurst, N.C. Dr. Wilson had been on a holiday and was suddenly stricken with pneumonia. He returned to Toronto early in April.

The term "artificial kidney" was first used by Abel, Rowntree and Turner in 1913 when they put blood through celloidine tubes in a rinsing fluid using hirudine extracted from leech heads as an anticoagulant. In 1933, after heparin was purified, Dr. Gordon Murray of Toronto began his work on removing toxins from the blood by dialysis. Using this principle he extracted toxins from the blood of experimental animals in 1939, but did not use the method elinically till a year ago. Since then six nræmie patients have been treated with his artificial kidney; all are alive. He described his methods at the Central Surgical Society in Chicago last February.

Dr. W. J. Koloff of Kampen, Holland, ent off by German occupation from outside scientific publications, completed his artificial kidney during the war. He described it to the Physiological Society of the University of Toronto and to the Toronto Academy of Medicine in April. The Netherlands kidney consists of about 120 feet of cellophane tubing through which the blood passes; it is wound loosely on a rotating drum which is partly submerged in a bath of rinsing fluid. Continuous dialysis occurs, clotting is prevented by heparin. Dr. Koloff was happy to have the opportunity of examining the more compact Toronto kidney and of discussing his problems with the Toronto workers.

LILLIAN A. CHASE

Quebec

La Faculté de Médecine de l'Université de Montréal déclare ouvertes les chaires suivantes: Bactériologie, Hygiène, Matière Médicale et Pharmacologie, Médecine opératoire, Pathologie chirurgicale, Clinique Médicale (hôpital Notre-Dame), Physiologie, Physique médicale et Electrologie, Propédeutique, Urologie.

Les Drs Léon Gérin-Lajoie, président sortant-decharge, Wallace Wilson de Vancouver, président actuel, et T. C. Routley, secrétaire général de l'A.M.C. représenteront cette association au congrès mondial de la santé qui se tiendra à Paris, fin septembre et début d'octobre 1947.

L'assemblée annuelle du Conscil des hôpitaux de Montréal s'est tenue le 27 février dernier à l'hôpital Notre-Dame. Les officiers suivants furent élus: président d'honneur: le ministre de la Santé, l'Hon. J. A. Paquette; président actif: Mr J. H. Roy, de l'hôpital St-Luc; lier vice-président: Dr G. F. Stephens, surintendant de l'hôpital Victoria; 2ième vice-président: Mr René Laporte, surintendant de l'hôpital Notre-Dame; trésorier: Dr Edmond Dubé, directeur médical de l'hôpital Ste-Justine; et secrétaire: Dr A. L. C. Gilday de l'hôpital Western.

Le Dr A. Cantero a été élu récemment président de la Société de gastro-entérologie de Montréal.

La division de Québec de l'Association médicalé canadienne s'est choisi comme président M. le Dr Charles Auguste Gauthier, chargé du cours de déontologie et d'économie médicale à la Faculté de Médecine de Laval. Cette élection s'est faite durant la réunion annuelle de la société à Québec où trois séances de travaux médicaux ont réuni une centaine de médecins les 18 et 19 avril derniers.

Les séances furent présidées à l'Hôpital du St-Sacrement par le Prof. Renaud Lemieux, à la Faculté par le Doyen, le Prof. Charles Vézina, à l'Hôpital des Anciens Combattants par le Col. L.-J. Petitelere, tandis que l'assemblée annuelle était dirigée par le président sortant de charge, le Dr John Fraser. JEAN SAUCIER

May 1, 1947, was the 125th anniversary of the opening of the Montreal General Hospital. The hospital has grown from its original 72 beds to its present capacity of 641. Two other hospitals in the Province antedate the Montreal General Hospital, the Hôtel-Dieu of Quebec and the Hôtel-Dieu of Montreal which latter has associated with its foundation the outstanding figure of Jeane Mance. But the "General" has its own peculiar lustre particularly in regard to teaching and the carrying on of research. It has promoted the teaching of medical students from its very first year, and the medical school started in connection with the hospital, the Montreal Medical Institute, later became the McGill Medical Faculty, and indeed was the means of preserving MeGill University from an untimely dissolution. In the world of nursing the hospital training school stands amongst the best known in Canada.

The latest development in the hospital's activities is the establishment of a Research Institute, to be known as the Institute for Special Research and Cell Metabolism. This will be housed in premises adjacent to McGill University, the gift of two members of the hospital's Board of Management. The director of the Institute is Dr. I. M. Rabinowitch, of Montreal, whose long and brilliant career at the hospital is well recognized.

brilliant career at the hospital is well recognized.

The Institute will be comprised of five divisions, namely, enzyme, physical chemistry, pure organic chemistry, general chemistry and experimental physiology, and the character of the research to be carried out within this Institute will therefore be of a type hitherto not regarded as a function of hospital laboratories but rather of highly specialized university laboratories.

The work of the Institute will be initiated by three major projects:

1. An entirely new method of approach to determine the cause of cancer. This work will be done with the aid of a generous gift from a member of the hospital's board of management who wishes to remain anonymous. 2. An investigation of the metabolism of carbo-

2. An investigation of the metabolism of carbohydrates in human nutrition in health and disease. To be carried out with the aid of a grant from the Sugar Research Foundation, Inc., New York.

3. The study of possible harmful effects of new chemicals on the human body because of their increasing use in various industries. This work will be done with the aid of a grant from the National Research Council of Canada.

Saskatchewan

The College of Physicians and Surgeons of Saskatchewan have adopted, subject to the approval of authorities concerned, a schedule of fees for contracted fee forservice practice. It is to be negotiated with such contracting parties as provincial health regions, government responsibility cases, workmen's compensation board, voluntary health organization services, fee forservice municipal contracts, etc

A standing committee on tariff has been set up to; (1) recommend fees for items not listed: (2) continuously study the schedule for use and application to meet changing conditions; (3) advise where adjudication is necessary; (4) receive, and consider recommendations from any member, section or group on the items in the schedule applicable to that group.

As a result of some representations made to the government in 1946, to the effect that the professions of Saskatchewan were abusing their powers and not conducting affairs in the interest of the people, a select committee was set up to examine the affairs of the professions, including the medical profession. The report as accepted by the legislature, does not recommend any drastic changes. The changes recommended which involve our profession are. (1) reports of

disciplinary action are to be submitted to the Minister of Health, and, (2) a companion Register is to be kept

with the Department of Public Health.

The investigation into the affairs of the medical profession was most thorough, and the result is a confirmation of our integrity, and ability to conduct our-selves in a manner to the credit of our profession and our patients.

Acting on instructions from the Council, a register of all specialists will be maintained in the office of the The certification of specialists will be that granted by the Royal College of Physicians and Surgeons of Canada.

Plans are well under way for the Saskatchewan Medical Convention in Regina on September 8, 9 and 10. Drs. B. C. Leech of Regina and L. G. Bray of Moose Jaw are chairmen of the committee on arrangements.

The Registrar's office has been instructed by Council not to accept photostatic copies of diplomas for the purpose of registration.

At the annual meeting of the Council the following senior life memberships were granted for 1947: Dr. R. O. Coghlan of Glaslyn, Dr. A. N. Hardy of Regina, Dr. O. E. Rothwell of Regina, Dr. L. A. Roy of Regina, Dr. J. A. Scratch of Maymont, Dr. R. Stipe of Watrons, Dr. C. B. Stone of Arcola, and Dr. J. H. Storry of Rabbit Lake.

Appreciation of many services to the profession was expressed when Dr. J. L. Brown, Chairman of the Central Health Services Committee and Medical Advisory Committee of Seven, and Dr. J. F. C. Anderson who for many months assisted the Registrar's office in the absence of a Registrar, were presented with original oil paintings by the Saskatchewan artist, Kendardine.

The three year experiment agreed to in 1944 between the Saskatchewan Government and the medical profession on a gentlemen's agreement, to provide medical and surgical care for old age peusioners, mother's allowance recipients, blind pensioners, as well as children who are wards of the government, concludes December 31, 1947. The profession were to be paid from a fund established on the basis of \$9.50 per eapita for approximately 25,000 persons. In 1945 accounts were paid at the rate of 77%; the 1946 accounts will be paid at 59%. profession are hoping that their new agreement can be negotiated on the basis of the recently prepared contract schedule.

Dr. Harvey C. Boughton, Superintendent of the Saskatoon Sanatorium, was presented, on April 8, with an honorary membership in the tuberculosis veterans' section, No. 78, Canadian Legion, B.E.S.L., Saskatoon, for valuable services given to tubereulosis veterans, particularly in establishing entitlement to pension. Since 1919 Dr. Boughton has maintained his place as civilian consultant to the military and D.V.A. services.

Dr. John C. Creighton of Estevan has accepted an appointment in Nyasaland, British East Africa. The offer of the appointment was made by the British Government through the British Colonial Medical Association and is in recognition of Dr. Creighton's services in Africa during the war. Dr. and Mrs. Creighton and their two children plan to leave for overseas in May.

Dr. Earnest A. Johnson of Elfros has been awarded a Hermant fellowship in ophthalmology by the University of Toronto, and will begin his appointment in July. He will do research work in eye diseases, and have some teaching duties, in addition to a two-year residency in the Toronto hospitals.

After thirty-one years of service with Saskatchewan mental hospitals, Dr. A. D. Campbell, superintendent of the Weyburn mental hospital is retiring to Vancouver, on April 1, due to ill health. Dr. Campbell was born in Priceville, Ontario, in 1882. He graduated from the University of Toronto in 1907 and started practice in North Battleford in 1911, going from there to the staff of the mental hospital in 1916.

The appointment of Dr. F. C. Lawson, Toronto, as superintendent of the Mental Hospital at Weyburn, was accounted by Dr. C. F. W. Hames, Deputy Minister of the Department of Public Health. Dr. Lawson graduated at the University of Toronto in 1928. Following graduation he engaged in Psychiatric work in the United States and Canada and he holds a diploma in Psychiatry from the Toronto Psychiatry Hospital. Prior to this appointment Dr. Lawson was clinical director to the Toronto Psychiatric Hospital. At the Weyburn Mental Hospital he succeeds Dr. A. D. Campbell who retired. B. Brachman

General

The American Congress of Physical Medicine will hold its twenty-fifth annual scientific and clinical session September 2, 3, 4, 5 and 6 inclusive, at the Hotel Radisson, Minneapolis. Scientific and clinical sessions will be given the days of September 3, 4, 5 and 6. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, the annual instruction courses will be held Scptember 2, 3, 4 and 5. These courses will be open to physicians and the therapists registered with the American Registry of Physical Therapy Technicians. For information concerning the convention and the instruction course, address the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

The American Public Health Association announces its 75th Annual Meeting as taking place in Atlantic City, New Jersey, October 6 to 10 inclusive, 1947. Exhibits and the scientific program will point up progress in public health over a 75-year span.

The American Society for the Study of Arteriosclerosis.-Plans have been completed to organize the American Society for the Study of Arteriosclerosis. Clinicians and experimentalists interested in a concerted intensified investigation of all phases of this disease are invited to join this organization and arc urged to contact as soon as possible Dr. O. J. Pollak, Wilmington General Hospital, Chestnut and Broom Streets, Wilmington 14, Delaware.

The constituting meeting has been called for Monday, June 9, 1947, at 9.00 a.m. at the Hotel Strand, Pennsylvania Avenue and Boardwalk, Atlantic City, New Jersey.

Camera Salon to Hold Third Annual Showing.-The Third Annual Showing of the Canadian Physicians' Fine Art and Camera Salon will be held in the Hudson's Bay Auditorium in Winnipeg during the week of the 23rd to 27th of June, in conjunction with the Convention of the Canadian Medical Association.

The Canadian Medical Association Salon Committee —a committee of Canadian doctors—is composed of Dr. G. E. Tremble, Dr. J. L. Notkin, and Dr. A. Jutras, of Montreal; and Dr. Harvey Agnew, of Toronto. Dr. Tremble has been elected Chairman of the Committee. The judges of the Salon this year will be Mr. Alex Musgrove, D.A., Curator of the Winnipeg Art Gallery Association, Professor W. Leach and Mr. Newton Brett, of Winnipeg.

At the request of Canadian doctors, the Salon this year will be divided into three sections: the Fine Arts and monochrome photography of last year will be

ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION

THE TECHNICAL EXHIBITIONS

We publish herewith a list of the exhibitors at the 78th Annual Meeting in Winnipeg in June.

It should be realized that the pharmaeeutical and other manufacturing firms play a highly important part in the practice of medicine, and we draw particular attention to the display which has been arranged for this year. No important department of medicine is overlooked: drugs, books, technical apparatus of all kinds, dietetic products which fill such an essential rôle in treatment: all are presented attractively and in many eases with considerable instruction.

We hope that all who attend the meeting will make a point of spending some time in visiting these exhibits. [Editor]

LIST OF EXHIBITORS

American Can Company, New York.

Anglo Canadian Drug Company, Oshawa, Ont.

Armour Laboratories, Hamilton.

Ayerst, McKenna & Harrison Ltd., Montreal.

Becton, Dickinson & Company, Rutherford, N.J.

Borden Company Limited, Toronto.

British Drug Houses (Canada) Ltd., Toronto.

Burroughs Wellcome & Company, Montreal.

Cameron Heartometer Company, Ghicago.

Camp, S. H. & Company, Jaekson, Mich.

Canadian Kodak Company Limited, Mount

Dennis, Ont.

Canadian Tampax Corporation, Limited, Brampton, Ont.

Carnation Company, Oconomowoe, Wisconsin. Ciba Company Limited, Montreal.

Coca-Cola Limited, Toronto.

Davis & Geck, Incorporated, Brooklyn, N.Y. DeVilbiss Manufacturing Company Limited, Windsor, Ont.

Dominion Oxygen Company Limited, Toronto. Down Brothers Limited, Toronto.

Eli Lilly & Company (Canada) Ltd., Toronto.

Fisher & Burpe Limited, Winnipeg.

Frosst, Charles E. & Company, Montreal.

Heinz, H. J. Company of Canada Ltd., Toronto.

Horner, Frank W. Limited, Montreal.

Imperial Optical Company, Winnipeg. Ingram & Bell Limited. Toronto.

Laboratory Poulenc Frères of Canada Limited.

Montreal.

Lederle Laboratories Division, Montreal. Lippincott, J. B. Company, Montreal. Macmillan Company of Canada Ltd., Toronto. Mead Johnson & Company of Canada Limited, Belleville, Ont.

Mennen Company, Newark, N.J.

Merek & Company Limited, Montreal.

Milgo Limited, Hamilton.

Nestlé's Milk Products (Canada) Ltd., Toronto. Parke, Davis & Company Ltd., Walkerville, Ont. Picker X-Ray of Canada Limited, Montreal.

Procter & Gamble Company, Toronto.

Reckitt & Colman (Canada) Limited, Montreal. Ritter Company Incorporated, Rochester, N.Y.

Rougier Frères Incorporated, Montreal.

Ryerson Press, Toronto.

Schering Corporation Limited, Montreal.

Sharp & Dohme (Canada) Limited, Toronto.

Smith & Nephew Limited, Montreal.

Spencer Supports (Canada) Ltd., Rock Island.

Squibb, E. R. & Sons of Canada Ltd., Toronto Stearns, Frederick & Company of Canada Limited, Windsor, Ont.

Stevens, J. & Sons Limited, Toronto,

Victor X-Ray Corporation of Canada Limited, Winnipeg, Man.

Wander, A. Limited, Peterborough, Ont.

Warner, Wm. R. & Company Limited, Toronto Wingate Chemical Company Limited, Montreal. Winthrop Chemical Co. Inc., Windsor, Ont. White Laboratories Incorporated, Newark, N.J.

Wyeth, John & Brother (Canada) Limited, Walkerville, Ont.

X-Ray and Radium Industries Limited. Toronto. Zenith Radio Corporation of Canada Limited, Windsor. Ont.

retained while an additional section for Kodachrome transparencies has been added. The Fine Arts section includes: paintings in oil, water colours and tempera, charcoal drawings, pastels and etchings.

The Salon is sponsored by Frank W. Horner Limited, of Montreal.

International Association of Medical Women.—The 5th Congress of the International Association of Medical Women will be held in Amsterdam, Holland, from June 24 to 30, 1947. There will be some thirty delegates from the United States and representatives from Great Britain and European, South American, and Asiatic Two Canadian medical women plan to go to Holland for the Congress. They are Dr. Anna Wilson and Dr. Margaret Owens of Winnipeg. Dr. Owens is the President of the Federation of Medical Women of Canada.

The responsibilities of medical, women in the reconstruction of the world will be studied, considering their part as physicians, social workers, and in international co-operation. Those attending the Congress will be asked to bring all available information regarding the effects of the war ou their country, both physical and social; together with details of existing medico-social legislation.

International Conference of Physicians.—The Royal College of Physicians is arranging au International Conference of Physicians to be held in London during the week September 8 to 13, 1947. The Conference will be divided into the following sections: Cardiology; Dermatology; Disorders of the Chest; General Medicine;

Neurology; Pædiatrics; Psychiatry; Social Medicine.
Applicants for admission to the Conference should state sections they wish to attend. Application for ticket of admission must be made to Dr. G. B. Mitchell-Heggs, Organizing Secretary, Royal College of Physicians, Pall Mall East, London, S.W.1. Accommodation in hotels and restaurants is very limited owing to the ravages of war. If assistance is wanted in finding accommodation for the Conference, it is essential to apply before June 30. No applications will be considered after this date. Admission to the Conference is confined to medical practitioners and is by ticket only.

Life Insurance Medical Research Fund.—The Life Insurance Medical Research Fund of New York announces the award of 48 grants in aid of medical research in the field of cardiovascular disease, 13 post-graduate research fellowships, and 1 student research The total sum granted for research fellowship. programs is \$463,155. Postgraduate fellowship stipends vary from \$2,500 to 3,500 and student fellowship stipends from \$1,500 to \$2,000.

The list of grants in aid to Canadian centres made in

March, 1947 is as follows:

McGill University for research by Dr. Sydney M. Friedman on the effects of diet, situational stresses, and hormones on renal function and blood pressure (renewal), \$4,200.

McGill University for research by Dr. Hebbel E. Hoff on the negative and positive after potentials of the

heart, \$3,360.

University of Western Ontario for research by Dr. Alan C. Burton on factors in cardiovascular diseases, including studies of proteinuria and vascular linings, \$10,500.

University of Western Ontario for research by Dr. Otto G. Edholm on the hæmodynamics of the peripheral circulation, \$10,500.

University of Western Ontario for research by Dr. E. M. Watson on factors in the development and prevention of cardiovascular-renal disease in diabetic animals, \$6.300.

Amongst postgraduate research fellowships for 1947-48 were those awarded to John R. Polley, Ph.D., of Toronto, Ontario, to work under the supervision of Dr. Svdney M. Friedman at McGill University Faculty of Medicine; and Ashley E. Thomson, M.D., of Regina, Saskatchewan, to work under the supervision of Dr. J. Doupe at the University of Manitoba.

World Health Organization (Interim Commission).-A Sub-committee of the Committee on Administration and Finance of the Interim Commission of the World Health Organization met at the Palais des Nations, Geneva, from February 17 to 20, under the Chairman-ship of Dr. C. Van den Berg (Netherlands), to consider the allocation of the fund of \$1,500,000 derived from UNRRA to be used in partial continuation of UNRRA's health programs in certain countries. Provisional allocations were made, inter alia, for the teaching program in China, for continuation of basic health training in Ethiopia and for Malaria and Tuberculosis Control in Greece; for fellowships from eight countries; for visiting lecturers and the supply of medical literature; and for contributions to the salaries of specialists stationed at the New York and Geneva Offices of the Interim Commission.

Quebec Branch Canadian Cancer Society. - The Annual Meeting of the Quebec Branch of the Canadian Cancer Society will be held at the Quebec Branch office of the Society, 1481 Sherbrooke Street West, Montreal, Quebec, on Thursday, June 12, 1947, at the hour of 4.30 o'clock in the afternoon for the purpose of receiving reports, and the transaction of such other business as may properly be brought before the Meeting.

The National Association for the Prevention of Tuberculosis will hold a Health and Tuberculosis Conference in London. England, July 8 to 10, 1947, in the Central Hall, Westminster, S.W.1. The delegates' fee is 2 guineas for 3 days or 1 guinea

for a single day, and applications may now be made. Those desiring to take part in the program are requested to write to the Secretary general, Dr. Harley Williams, Tavistock House North, Tavistock Square, London.

Norton Medical Award Invites Manuscripts.-W. W. Norton & Company are again offering the Norton Medical Award for book manuscripts written for the lay public by professional workers in the field of medicine. Terms of the award have been slightly altered. The publishers now set no final closing date for the submission of manuscripts which may be submitted at any time, the award not being limited to any one year. Norton Award offers \$5,000 as a guaranteed advance against royalties. Either complete manuscripts or detailed table of contents together with one hundred pages of manuscript may be submitted. A descriptive folder giving full details of the terms of the Award may

be secured on request from the publishers, W. W. Norton & Co. Inc., 101 Fifth Avenue, New York 3, N.Y. Books that have previously won Norton Medical Awards are The Doctor's Job by Carl Binger, M.D., Doctors East, Doctors West by Edward H. Hume, M.D., and A Surgeon's Domain by Bertram M. Bernheim.

M.D., published this spring.

Bismuth Diallyl-Acetate Suppositories. — According to information received from the United States by the food and drugs division of the Department of National Health and Welfarc, a number of fatal poisonings of infants have recently occurred there. The deaths are said to be associated with the use of rectal suppositories for the prevention and treatment of throat infections.

It is announced that the federal food and drugs division has already taken steps to stop the sale of such products in Canada, and, as an added precantion, is issuing this warning to the medical and pharmaceutical

professions.

The number of deaths which have resulted in the United States is somewhat indefinite, as reports of death and injury continue to be received. The total number of reported deaths to date is about 15, some of which have not been completely investigated to determine the exact cause of death.



The active ingredient is bismuth diallyl-acetate (bismuth heptadiene carboxylate). The suppositories are sold in two sizes, namely, adults' and children's, containing respectively 45 mgm. and 22.5 mgm. of bismuth (as metal) per suppository. The dose for children under six years is one-half ehildren's size suppository. In all instances of injury and death, children under the age of six were affected and apparently whole suppositories, either adults' or ehildren's size, were administered contrary to the directions for use.

Where autopsy was performed, liver damage was almost invariably found, this organ being enlarged and fatty. Toxic quantities of bismuth, however, were not found. It is now believed that any danger in the use of overdoses of the product may be attributable to the organic allyl radical, and also to the narrow margin between therapeutic and toxic doses for infants.

American Heart Association.—The Annual Meeting of the American Heart Association will be held at the Hotel President, Atlantic City, New Jersey, on June 6 to 8, 1947, prior to the Annual Session of the American Medical Association. Members of the medical profession and other interested persons may attend the scientific sessions on June 6 and 7.

The Iraq Government is asking for eandidates to fill the following posts at the Royal Medical College, Baghdad: Professors of Gynæeology; of Ophthalmology of Ear, Nose and Throat Diseases; an expert on Children's Diseases; and a Director of the Government Parasitology Laboratory. Special importance is attached to the Professorship of Gynecology and to the expert on pædiatrics, as the King of Iraq is himself a child and suffers from asthma. Private practice is permitted.

The salary is 150 Iraqi dinars a month (a dinar is equivalent to the £ sterling) with a cost of living allowance of 24 I.D. a month. Passage will be paid out and home again on satisfactory termination of contract.

Apply to the British Foreign Office, London, Eng.

BOOK REVIEWS

Atlas of Histopathology of the Skin. G. H. Percival, Grant Professor of Dermatology, University of Edinburgh; A. M. Drennan, Professor of Pathology, University of Edinburgh; T. C. Dodds, Laboratory Supervisor, Department of Pathology, University of Edinburgh, 494 pp., illust. \$16.50. E. & S. Livingstone, Ltd., Edinburgh; Macmillan Co. of Canada, Toronto, 1947.

This book in the best Edinburgh tradition, is a delight to peruse at leisure or to have beside one as one sits over the microscope at the laboratory bench. It is precisely what its title indicates. Of its 494 pages, less than 45 are occupied by type. The remaining space is given to 489 excellently chosen and beautifully reproduced colour microphotographs. These do not seem to have been retouched or in any degree sophisticated but are exactly what one sees with his eye at the ocular. The descriptive matter accompanying each illustration is reduced to a minimum, yet it is adequate for anyone possessing a small amount of familiarity with histopathology

Notable features which add greatly to the value of the book for the general student as well as the dermatologist are, a section devoted to the normal histology of the skin, with 21 microphotographs; the use of a variety of stains beside the conventional hæmalum and eosin, several depictions of the same lesion often appearing stained with various special techniques (always named); and the microphotographs of cleared specimens of the metaroan parasites, such as pulcx, cimex, acarus scabci,

In general the terminology is modern and consistent: the epithelioid earcinomas are properly referred to as basal-cell, squamous-cell and basi-squamous careinoma, and the term melanotic sarcoma is abandoned for malignant melanoma. Confusion may be introduced however over such subjects as "nevus senilis" for which verruca seborrhæica and verruca senilis (p. 295) and seborrhæic wart are given as synonyms, whereas "senile keratoma" (p. 421) is mentioned as to be differentiated from (contagious) verruea, although this important premalignant lesion does not receive any other mention.

Although good books already exist devoted to cutaneous histopathology this book is, for the student of dermatology and pathology, an indispensable library

Cardiovascular Diseases. D. Scherf, Associate Professor of Medicine, New York Medical College; and L. J. Boyd, Professor of Medicine, New York Medical College. 478 pp., illust. \$11.50. J. B. Lippincott Company, Philadelphia, Pa., 1947.

This book is the rewriting of a volume which has enjoyed widespread fame and has been translated into seven languages. The authors present a detailed diseussion of cardiovascular diseases with extensive bibliography in place of a series of essays on selected eardiac problems—the method by which the subject was treated in former editions,

The initial chapters deal with the physiology of eardine function. These are followed by a discussion of compensation and decompensation, embolism and thrombosis. Rheumatic fever with the various cardine manifestations and end results receive adequate attention. The chapter on the heart in endoerine disorders is especially instructive, as are the chapters on peripheral vascular disease.

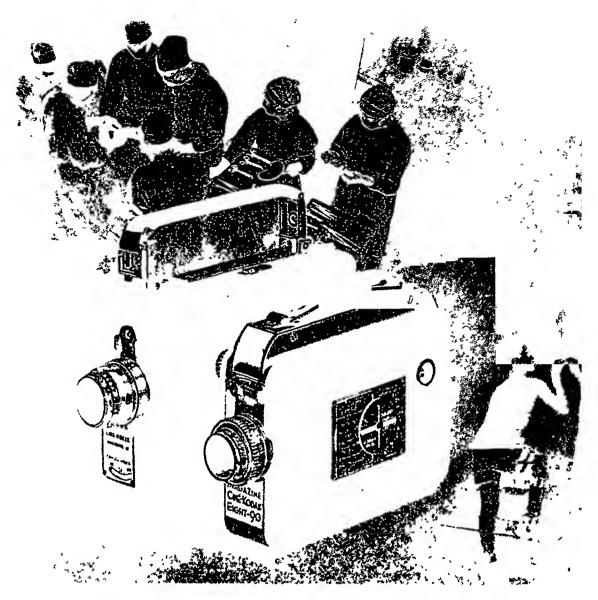
The present volume is a worthy successor to previous editions which have enjoyed such well deserved favour among the medical profession.

Charles-Edouard Brown-Séquard. J. M. D. Olmsted, Professor of Physiology, University of California. 253 pp. illust. \$3.00. The Johns Hopkins Press, Baltimore, 1946.

This volume comprises the Noguchi lectures of 1946 delivered at the Johns Hopkins Institute of the History of Medicine, and completes Dr. Olmsted's studies of the three great French experimental physiologists of the nineteenth century—Magendie, Bernard and Brown-Séquard. As in his previous hooks Dr. Olmsted writes with admirable elarity and balance, avoiding the romantic approach and excursions into dubious psychoanalytical channels that mar so much of modern historieal writings.

Brown-Sequard's life is worthy of record. It is the tale of a man who shuttled back and forth to the medical centres of France, England and the United States and did not find his "spiritual home" until at the age of sixty-one he achieved the appointment of Professor of Medicine at the Collège de France in Paris. He possessed the unfailing characteristics that mark the man of genius—stupendous energy, restlessness, intuitive insight. He was a man before his time in the difficulty which he encountered in finding anything like adequate circumstances in which to pursue his work in experimental physiology. But in spite of all, his scientific achievements were considerable in themselves and in what they foreshadowed, and these are well assessed by Dr. Olmsted who is a distinguished physiologist.

This is a book which will be thoroughly enjoyed by every medical student and physician. It is no dry treatise. The author has a disarming simplicity of style and is master of the effective quiet phrase which show that the scientifie discipline can produce excellent writing. Incidentally it is worth recording that, despite his euriously hyphenated name which in itself is the record of a romantic story, Brown-Sequard shares with Sir William Osler the distinction of being inaccurately labelled by the erudite Encyclopædia Britannica. He is



For men who have a feeling for fine craftsmanship...the CINÉ-KODAKS

S^{IMPLE}, EFFICIENT... these Ciné-Kodaks operate with smooth, unfailing precision. Either the Magazine 16 or the Magazine 8 can be of invaluable assistance to the orthopedist in studies of gait and muscle dysfunction... to the physician or the surgeon who wants to record treatment or surgical technic for presentation to associates or students.

Quality, such as is built into these Ciné-Kodaks, is characteristic of everything Kodak makes. For every Kodak product . . . whether it's a camera, a film, a chemical . . . is produced to highest standards, under an unsurpassed system of quality control.

Canadian Kodak Co., Limited, Toronto 9, Ontario.

Serving Medical Progress through Photography and Radiography

Major Kodak Products for the Medical Profession

X-ray films, x-ray intensifying services year processing chemicals, car graphic film and paper, camer still and motion picture, projecto still and motion picture, photografilms—color and black-and-w (including infrared), photograpapers, photographic processing chemicals, synthetic organic chemicals, Recordals.

Kodak

termed a "British physiologist" just as Osler is introduced as a "British physician".

Retinal Structure and Colour Vision. E. N. Willmer, Lecturer in Histology in the University of Cambridge. 231 pp., illust. \$4.75. University Press, Cambridge; The Macmillan Co. of Canada, Toronto, 1946.

This is not a textbook on the physiology of colour vision. It is wholly devoted to describing and bringing out the arguments in favour of the author's theory of colour perception. The present knowledge, and the lack of knowledge, of the anatomy of the rods and cones and their retinal synaptic connections is the background for Willmer's conception. He postulates three photoreceptors in the sensation of colour. Anatomically le locates them as the cone, the light-adapted rod, and the dark-adapted rod. The cone relays by way of the midget bipolar, the day-adapted rod by the brush bipolar, and the dark-adapted rod by the mop bipolar cell. Physiologically these acceptors are, in order, most sensitive to red, green and blue. The greater portion of colour vision can be explained on the basis of acceptors for red and green only, so that the acceptor for blue plays only a very subsidiary role.

By charting the percentage rod sensitivity against the percentage cone sensitivity, using the photopic and scotopie retinal visibility curves, a figure is obtained which resembles in many respects the colour triangle. The inadequacies of Willmer's figure can be largely explained on the action of the third aeeeptor. The data for isoehromatic areas is then found to be easily explainable on the basis of relative rod and cone sensitivity. The data on nerve impulse frequency from the rod and cones, and saturation, and complementary colours, all conform to the theory. The macula is dichromatic, and lacks the blue acceptor. This is shown by experiments using small test objects, and is confirmed by the peculiar anatomy of the bipolar cells in this region and the lack of central vision during dark adaptation. The anomalies of colour vision can also be explained on the basis of this theory.

To the uninitiated this book would be a complicated, incomplete and biased introduction to the physiology of colour vision. However, those who are familiar with this subject will find it interesting and extremely thought-stimulating. It undoubtedly will exert a great influence on the study of colour vision and probably will raise more criticism than agreement.

Uterotubal Insufflation. I. C. Rubin, Clinical Professor of Gynæcology, College of Physicians and Surgeons, Columbia University. \$11.00. The C. V. Mosby Co., St. Louis, Mo.; McAinsh & Co., Ltd., Toronto, 1947.

A book on this subject from the pen of an acknowledged master demands attention. The title does not do full justice to the scope of the work, which includes two interesting chapters on the physiology of the Fallopian tubes and the relation of ovarian function to the physiology. The tubes are described as actively functioning organs with peristaltic waves and contractions affected by the particular phase of the menstrual cycle. Much information has been gained by the use of the kymograph.

Dr. Rubin's investigations into the possibility of passing x-ray opaque substances through the utcrine cavity and tubes into the peritoneal cavity began in 1914 and continue to the present day. Though he began with the use of collaryol, he soon abandoned it and in 1919 he made the first uterotubal insufflation with oxygen. Later CO₂ was substituted. Though he feels strongly that uterotubal insufflation with gas is preferable to the injection of lipiodol and other x-ray opaque substances. he gives a detailed description of both

He makes a good case for the value of uterotubal insufflation, not only as a means of determining the patency or otherwise of the tubes, and so a measure

of prime importance in the study of sterility, but as a therapeutic agent in sterility and dysmenorrhea.

Autopsy Diagnosis. O. Saphir, Pathologist, Michael Reese Hospital. 405 pp., illust., 2nd ed. \$5.00. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, New York and London, 1946.

This handbook on the subject of autopsy work by so well-known an authority as Dr. Otto Saphir, can be highly recommended to those engaged in autopsy work. Chapters I to XXI, inclusive, cover in a thorough and readable fashion, the technique of the examination of the various regions of the body, and the technique is fully illustrated by drawings. The diagnosis of lesions is well served by some 18 tables of differential diagnostic points. Chapters XXII, XXIV and XXV give valuable hints on the gross pathology of Blood Dyscrasias, Vitamin Deficiencies and certain Tropical Diseases respectively. Chapter XXIII deals with autopsies on Stillborns and Infants, and Chapter XXVI is an invaluable table of weights and sizes of various organs of infants and adults.

The style makes for easy reading, and the book is filled with a fund of detailed information greater than that furnished in books of this size and type on this subject.

Buchanan's Manual of Anatomy. Edited by F. Wood Jones, Sir William Collins Professor of Human and Comparative Anatomy of the Royal College of Surgeons of England. 1616 pp., illust., 7th ed. \$10.00. Baillière, Tindall and Cox, London; Maemillan Co. of Canada, Toronto, 1946.

The seventh edition of this old favourite is well worth recommending. This book is not as familiar to the medical profession on this continent as it is in the British Isles, where for many years it has been one of the most prominent anatomy texts. From the standpoint of both student and busy practitioner it has many excellent features. Each region is presented as a distinct entity and everything dealing with it fully discussed in the one place. This makes it an easy book to use for reference. In each ease the structures and relationships are described briefly and lueidly, always with an eye to their relative importance, so that not much space is lost to academic detail.

The illustrations are uncluttered and although they are not in colour, they are extremely descriptive and clear. For the student this text is recommended as a readily followed compendium; for the practitioner a most useful reference.

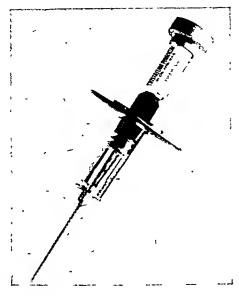
Essentials of Obstetrics and Gynæcology. W. A. Scott, Professor of Obstetrics and Gynæcology, University of Toronto; and H. B. Van Wyck, Assistant Professor of Obstetrics and Gynæcology, University of Toronto. 390 pp., illust. \$5.50. Lea & Febiger, Philadelphia; Macmillan Co. of Canada, Toronto, 1946

This book fills a vacancy, which has long existed, for undergraduate students in this subject. Medical students have always been confronted with an endless number of excellent textbooks on this subject, but the size of these books alone seemed to overwhelm the average student. In this manual, the subject has been reduced to the fundamentals, so that the student can grasp the essentials and use the larger works for particular problems.

The Anatomy and Physiology of the Female Genital System is very concisely dealt with at the beginning of the book. This gives a good opportunity to obtain a fundamental knowledge of this basic subject. Normal obstetrics, in all its aspects, is covered very simply and clearly. Abnormal obstetrics, of necessity, is reduced to a minimum All controversial matter is eliminated. This conciseness has allowed certain statements to be included which might be questioned. For instance, in describing Forceps in

CRYSTALLINE PENICILLIN IN OIL AND WAX

(ROMANSKY FORMULA)



Disposable Plastic Syringe

Crystalline sadium penicillin is naw used by the Labarataries in the preparation of Penicillin in Oil and Wax (Ramansky Farmula). The use of this highly purified farm of penicillin marks a further advance in the development of an improved product.

Ease of Administration—The improved mixture flows more freely through a hypodermic needle.

Minimum of Local Reaction—Because of the high purity of the crystalline penicillin in the product, local reactions are reduced to a minimum.

AN ADDED CONVENIENCE

Far the canvenience af members af the medical prafessian using the B-D* Metal Cartridge Syringe, a sterile 20-gauge needle is naw included in the replacement cartridge package.

, HOW SUPPLIED

DISPOSABLE PLASTIC SYRINGE PACKAGE

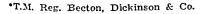
Included in this package is a sterile B-D* Disposable Cartridge Syringe, ready for immediate use with a special cartridge containing 300,000 International Units of crystalline penicillin in 1 cc. of peanut oil and beeswax. The plastic, syringe is discarded after use.

METAL CARTRIDGE SYRINGE PÁCKAGE

This package includes a B-D* Metal Cartridge Syringe, two sterile 20-gauge needles, and a cartridge containing 300,000 International Units of crystalline penicillin in 1 cc. of peanut oil and beeswax. The metal syringe is designed for repeated use with readily changeable needles and cartridges.

REPLACEMENT CARTRIDGE PACKAGE

Replacement cartridges containing 300,000 International Units of crystalline penicillin in 1 cc. of peanut oil and beeswax are obtainable separately from the Laboratories. These cartridges are supplied for use with the metal cartridge syringe. A sterile 20-gauge needle is supplied with each replacement cartridge.





Metal Cartridge Syringe

CONNAUGHT MEDICAL RESEARCH LABORATORIES
University of Toronto Toronto 4, Canada

the Occipito-Posterior position—"The danger of injury to the child and to the maternal soft parts is so great that we do not believe the Scanzoni method is advisable in modern obstetrics". This statement is hardly borne out in practical experience. Similarly a description of breech extraction is not included, although reference is made to this method. Also on the subject of Cæsarean section—"in cases in which there has been vaginal manipulation, or in which there is clinical evidence of infection, anything short of a Porro section is contraindicated, and a craniotomy, in many instances, is the proper solution". Surely a Water's extra-peritoneal Cæsarean section is a much more conservative method of dealing with these patients. However, the outline of abnormal obstetrics is very clearly and systematically described.

The second part of the book dealing with Gynecology is also condensed in a masterly fashion. The various topics are described briefly but pointedly. Of necessity various conditions, such as the menopause, are merely outlined.

In this manual the authors have succeeded in covering a very large branch of medicine in a simple, clear and concise way so that medical students and also many practitioners can obtain a good grasp of these two important subjects. This book is destined to obtain wide popularity.

Eye Surgery. H. B. Stallard, Assistant Eye Surgeon, St. Bartholomew's Hospital. 444 pp., illust. \$11.00. John Wright & Sons Ltd., Bristol; Macmillan Company of Canada, Toronto, 1946.

The author has succeeded in producing an extremely good book on the principles and practice of eye surgery. As he says in the preface, he has not tried to give any thing like an account of all the operations practised by eye surgeons for any given condition, but has described in each case the operations which he has found, in a long experience, to be the most practical and successful. He has described these operations in adequate detail, emphasizing the difficulties in each case. The chapter on Eyelids and Reconstructive Surgery is especially good. He has quite evidently drawn on a wide experience in describing the details of the different procedures in these plastic operations, and these operations are described in a simple straight-forward manner that makes it easy to understand and to follow the different steps. In the chapter on Extraocular Muscles he has refrained from enumerating a large number of alternative methods of operations, but has described the standard type of operation for each type of muscle defect. The chapter on Traumatic Surgery covers, in an extremely comprehensive manner, the possible reparative measures that can be taken in all of the ordinary accidents that occur in an industrial practice.

The book is splendidly produced, with good type and good paper, which makes it easily read.

Integrated Practice of Medicine. H. T. Hyman, Diplomate, American Board of Internal Medicine. Four volumes; separate diagnosis and subject index. 4621 pp., illust. \$55.00. W. B. Saunders Company, Philadelphia; McAinish & Co. Ltd., Toronto, 1947.

The aim of this work is to eover for the general practitioner the entire field of medicine, as well as the specialties, including dentistry. It also contains brief surveys of the preclinical subjects of anatomy, physiology, pathology and bacteriology, etc. In so far as it attempts to help the general practitioner to remain as such it is excellently conceived, although the taking in of all knowledge (medically) is usually ambitious, even with such a well chosen editorial staff as in this case. Still it is well worth trying to make the picture of the patient as a whole available, and this is what is done in these volumes. There still will be a place for the monograph and for special works, but in its attempt to condense the greater part of medical experience into such easily available form this text appears to be highly successful. A special word of praise may be said for

the many excellent colour plates, but the book work is first class throughout.

Penicillin in Neurology. A. E. Walker, Associate Professor of Neurological Surgery, the University of Chicago; and H. C. Johnson, Resident Neurological Surgeon, the University of Chicago. 202 pp., illust. \$6.25. Charles C. Thomas, Springfield, Illinois; The Ryerson Press, Toronto, 1946.

The basis of this monograph and most of its content is a presentation of experimental studies on penicillin in relation to the central nervous system. The many original investigations are fully reported and there is extensive reference to the work of others. The clinical applications on the neurological uses of penicillin are presented concisely and clearly. The clinical subject matter reflects the neurosurgical viewpoint of the authors but all pertinent neurological diseases receive some consideration.

In a preliminary chapter bacteriological aspects of penicillin are reviewed in a general way. The next section on administration deals largely with intrathecal injection which is necessary to produce any high concentration of penicillin in the cerebrospinal fluid. In the important chapter on toxicity the possible meningeal and radicular reactions are fully considered. There is particularly valuable information about the convulsant properties of penicillin injected into the cerebral cortex.

The chapter on treatment of meningitis is important and valuable in that decisions are based on the preceding careful experimental observations. The relative merits of penicillin and sulfadiazine in meningococcal meningitis are reviewed with an inconclusive favouring of sulfadiazine. In the treatment of pneumococcal meningitis the authors suggest alternate cisternal and lumbar injection of penicillin at twelve-hourly intervals. The recent extensive experience with penicillin in treatment of war wounds of the brain receives full consideration. Caution is advised in the direct administration of the drug to brain tissue. Treatment of osteomyelitis of the skull, venous thrombosis and subdural abscess are also considered. The section on the treatment of neurosyphilis is wisely brief and inconclusive. Finally there is brief discussion of other antibiotic substances with some valuable observations on the neurotoxicity of

The authors are to be congratulated on their careful and detailed presentation. Though the subject is a new method of treatment with limited accumulated clinical experience there is here collected a lot of important established experimental observations. The book will prove a useful reference manual particularly for neurologists and neurosurgeons.

Penicillin in Syphilis. J. E. Moore, Associate Professor of Medicine and Adjunct Professor of Public Administration, the Johns Hopkins University. 319 pp., illust. \$6.25. Charles C. Thomas, Springfield, Illinois; Ryerson Press, Toronto, 1946.

In June, 1943, Mahoney and his co-workers demonstrated the effectiveness of penicillin in early syphilis in man. Since that time a great deal of work has been done on this subject with opinions ou its usefulness varying from lukewarm to enthusiastic. Moore in his present monograph has attempted to supply the information to date. The first four chapters in his monograph are devoted to the chemistry, pharmacology and toxic reactions of penicillin. The fifth chapter discusses its activity in various infections and the bearing of these observations on its use in syphilis. Two chapters are devoted to penicillin in experimental syphilis and the mechanism of its action.

The remaining chapters are taken up with its use in the treatment of syphilis clinically. The most important chapter is that devoted to early syphilis. Because of the ease with which changes may be noted here, results may be observed more clearly and quickly than in late syphilis. It is apparent that results with intensive arsenical therapy are superior to that with penicillin.

In 1947 The Spotlight is on AMERICAN PRACTITIONER A New Lippincott Medical Journal!

FEATURING EACH MONTH

- Cases from the MEDICAL GRAND ROUNDS of the
- CLINICOPATHOLOGIC CONFERENCES from various

Gives you postgraduate teaching on problems met in daily practice . . . Presents only the very best in today's practice and knowledge of medicine . . . National coverage of the New things in medicine from 15 important medical centers . . . Applies the advances made in all important fields of modical centers . . . Applies the advances made in all important fields of medical science to your daily work... Evaluates and clarifies the clinical significance of research, test and experiment . . . Edited by men currently active in Clinical Practice and



AMERICAN PRACTITIONER

SIGN AND MAIL THIS COUPON NOW.

J. B. Lippincott Company, 2083 Guy Street, Montreel, P.Q. Please enter my subscription to start with the current issue. Payment enclosed. Charge my account.

City _ _

The Treatment of Empyrena wit Clinical Significance of Houses of Mammary, I

The Problem of Sterility Today

Testicular Distinction: Diagrami

He believes, however, that when the dangers of intensive arsenical therapy are taken into consideration as well as the lapses from treatment in routine arsenical treatment, the overall picture is better with penicillin.

Hc is enthusiastic about penicillin in prenatal and congenital syphilis. He advises it in hepatic and benign late syphilis and acute syphilitic nephrosis. Its use in ocular syphilis is at times valuable, in optic atrophy questionable. Little may be said about its use in cardio-vascular syphilis as sufficient time has not elapsed. In neurosyphilis it is his belief that it has a distinct place particularly when combined with fever therapy. He draws no conclusions as to its effects in latent syphilis except that he recommends it on theoretical grounds.

The author has given us a faseinating insight into the work done in syphilis with penicillin. Those interested, and that must include all physicians, will derive much knowledge from a perusal of the book. Since Moore himself has stated that years must elapse before conclusions may be drawn from the use of any new drug in syphilotherapy, the reviewer believes that the author has drawn too enthusiastic a pieture. There is still a place for routine arsenotherapy, particularly with improved methods of case holding.

Peripheral Circulation in Health and Disease. R. L. Richards, Rockefeller Fellow in Medicine.' 153 pp., illust. \$4.75. E. & S. Livingstone, Ltd., Edinburgh; Macmillan Co. of Canada, Toronto, 1946.

This monograph is based largely upon work done in the Neurovascular Unit at Gogarburn Hospital, Edinburgh, during the war years. The approach to the subject is a clinical one throughout. A review of the anatomy and physiology of the peripheral vasomotor system is followed by a short discussion of clinical methods pertaining to the examination of the peripheral circulation, with particular reference to skin temperatures. Consideration is given to the effects of spontaneous and imposed variations in vasomotor activity and the book is completed by short chapters devoted to the various types of peripheral vascular disease.

The peripheral circulation is a rather neglected subject. Much of the available literature concerning it is of a confused nature and this monograph, while short and incomplete, forms a valuable contribution.

Pulmonary Tuberculosis. R. Y. Keers, Medical Director, Red Cross Sanatoria of Scotland; and B. G. Rigden, First Assistant Medical Officer, Red Cross Sanatoria of Scotland. 277 pp., illust., 2nd ed. \$3.85. E. & S. Livingstone Ltd., Edinburgh; Macmillan Co. of Canada, Toronto, 1946.

This is an excellent little book and it gives a very clear, concise and thoroughly up-to-date account of pulmonary tuberculosis for the student and general practitioner. Emphasis is properly laid on the treatment of the tuberculous patient as an individual and the psychological side of the management of such eases is emphasized. The more recent developments such as B.C.G. vaccine, pulmonary resection and tuberculous bronchitis are all adequately covered. The authors stress the importance of the sanatorium type of care for tuberculous patients and also stress bed rest as being fundamental. This advice is sound in view of the modern tendency to be somewhat carried away by the dramatic effect obtained from collapse or other surgical treatment.

Physical Medicine in General Practice. Edited by A. L. Watkins. 341 pp., illust. \$6.00. J. B. Lippincott Co., Philadelphia, London, Montreal, 1947.

This book is a compendium of the various aspects of physical medicine by specialists in the different lines of the physical medicine clinics in the United States. It gives a good cross-section of the types of physical medicine now in use throughout the United States. Although written by 14 different authors, the book is quite readable.

It covers thoroughly many of the most frequently used forms of physical treatment. As is to be expected in a book of this type, there are some minor omissions. The use of massage, for example, is treated very briefly and there is no satisfactory description of the use of massage in specific types of treatment. Illustrations of the different massage movements commonly used would be of value in a future edition. There is a very satisfactory and extensive discussion of rehabilitation exercises. The section on fever treatment is well done although one feels that the author is a little too enthusiastic in the use of fever in brucellosis.

It is interesting to note that the use of electromyography is now being accepted as standard procedure in controlling the re-education of peripheral nerves.

Tutoring as Therapy. Grace Arthur, Ph.D., Psychologist, St. Paul, Minnesota. 134 pp. \$1.50. The Commonwealth Fund. New York, 1946.

If there is any doctor practising medicine who is in doubt of the value of educational direction for those children convalescing from illness, particularly when the convalescence extends over a long period of time, then he would be well advised to glance through this small book.

It is of value primarily to those engaged in the work of tutoring the convalescent or crippled child. It contains many specific examples of what can be done for individual cases.

The book points out that "the value of tutoring does not consist of giving individual attention for its own sake, but in adapting the teaching to the specific needs of the person to be taught". The chapter on "Tutoring as a Community Project" is worthy of the consideration of doctors who are interested in community welfare. This presents a plan which seems feasible and shows clearly how inadequate arc our present facilities. From the standpoint of the medical profession, the Department of Education should get every encouragement to advance in this worthwhile work.

BOOKS RECEIVED

Cambridge Medical History. Sir Walter Langdon-Brown, Emeritus Professor of Physic in the University of Cambridge. 119 pp. \$1.25. The University Press, Cambridge: Macmillan Co. of Canada. Toronto, 1946.

Chronic Disease and Psychological Invalidism. J. Ruesch et al. 191 pp. Psychosomatic Medicine Monographs. Published with the Sponsorship of the American Society for Research in Psychosomatic Problems, New York, 1946.

Clinics. Vol. V. No. 4. Edited by George M. Piersol, Professor of Medicine, Graduate School of Medicine, and Professor of Clinical Medicine, School of Medicine, University of Pennsylvania, Philadelphia. 248 pp., illust. \$2.00. J. B. Lippincott Co., Philadelphia, London, Montreal, 1946.

Die Hormonalen Aspekte des Fortpflanzungsprozesses. J. Samuels, Chirurg. Frauenarzt Spezialarzt für endogene Endokrinotherapic. 152 pp. Holdert & Co. N.V., Amsterdam, Holland. 1946.

Die Hormonversorgung des Foetus. J. Samuels. Chirurg. Frauenarzt, Spezial Arzt für endogene Endokrinotherapie, Amsterdam. 320 pp.: illust. E. J. Brill, Leiden, 1947.

Improvised Equipment in the Home Care of the Sick. L. M. Olson, R.N., Superintendent of Nurses, Kahler Hospital, Roehester, Minnesota. 265 pp., illust., 4th ed. \$1.75. W. B. Saunders Co., Philadelphia; McAinsh & Co. Ltd., Toronto, 1947.

Pre-frontal Leucotomy in 1,000 Cases. Board of Control (England and Wales). 31 pp. 6d. His Majesty's Stationery Office. London. 1947.

UNIVERSITY OF TORONTO SCHOOL OF HYGIENE

Diploma in Hospital Administration

The University of Toronto has established a Department of Hospital Administration in the School of Hygiene and will provide a postgraduate course in hospital administration for graduates in medecine and also for other university graduates who have acceptable academic standing, experience and aptitude.

The course includes one session of nine months' academic work and twelve months of supervised hospital experience as an intern in hospital administration.

The University of Toronto has received generous assistance from the W. K. Kellogg Foundation in the establishing of this course and during the first year certain scholarships have been made available.

The course will commence on Monday, September 22, 1947.

For further information, address

The Director, School of Hygiene University of Toronto, Toronto 5, Ontario

NEW EDITIONS OF THREE OUTSTANDING BOOKS

CLINICAL PRACTICE IN INFECTIOUS DISEASES

by Harries and Mitman

Enlarged Third Edition, 1947, incorporating new knowledge in the control and treatment of the acute infectious diseases.

\$5.00

DISEASES OF THE NERVOUS SYSTEM by F. M. R. Walshe

Revised Fifth Edition, 1947 New material on cerebral vascular disease and intracranial tumour.

\$3.75

PYE'S SURGICAL HANDICRAFT

edited by Hamilton Bailey

Fully revised Fifteenth Edition, with 789 illustrations, 1947.

\$5.50

THE MACMILLAN COMPANY OF CANADA

LIMITED

70 Bond Street

Toronto 2, Ont.

H. K. LEWIS & Co. Ltd.

MEDICAL PUBLISHERS and BOOKSELLERS

LARGE STOCK OF WORKS ON

MEDICINE AND GENERAL SCIENCE

of all Publishers.

SECOND-HAND DEPT.: 140, Gower Street, London, W.C.1.
Large stock of recent editions. Rare and out-of-print
books sought for and reported free of charge.

LONDON: 136 GOWER STREET, W.C.1

CABLEGRAMS:-PUBLICAVIT WESTCENT - LONDON

DESIRABLE ASSISTANTS

for your institution

can be secured through

A CLASSIFIED ADVERTISEMENT

in the JOURNAL



POSITIONING IN RADIOGRAPHY

By K. C. Clark. Here is the fourth edition of a magnificent British book by an outstanding authority. New material is included on mass miniature radiography and seriescopy, and notes on anatomical location and further localization methods in the Foreign Bodies section. Size 94" x 1124", 526 pages, 1,384 illustrations, fourth edition, 1945. \$26.00.

URGENT SURGERY Volume I

Edited by Julius L. Spivack. Eight master surgeons here present operative techniques which they employ in cases requiring immediate or almost immediate intervention, thus making available in one book, techniques of the first importance to the surgeon. 714 pages, 572 illustrations (14 in colour), 1946. \$13.00.

Send for our Catalogue of Medical Books

THE RYERSON PRESS TORONTO

JOURNAL OF

Canadian Medical Association

Editorial offices-3640 University St., Montreal General Secretary's office—135 St. Clair Ave. W. Toronto

Subscription rates: The Journal is supplied only to paid up members of the Canadian Medical Association with the following exceptions: for medical libraries, hospitals and doctors residing outside of Canada, the annual subscription is \$7.50; for medical students residing in Canada there is a special rate of \$2.50 per annum. All subscriptions and related correspondence should be addressed to the General Secretary's office at 135 St. Clair Avenue West, Toronto 5, Ontario.

Contributors: Articles are accepted on condition that they are contributed solely to this Journal.

Reproduction of material in this Journal for com-

mercial purposes is not permitted. Manuscripts must be typewritten, double spaced, and

the original copy.

References: in the case of a journal arrange as follows:

author (Jones, A. B.), title, journal, volume, page, year. In the case of a book: Wilson, A., Practice of Medicine, Macmillan, London, 1st ed., p. 120, 1922.

Illustrations: A limited number will be accepted. Photographs should be clear: drawings should be in india ink on white paper. All unmounted. Legends to be typed separately. to be typed separately.

Reprints: May be ordered upon forms sent with galley

proofs.

ADVERTISEMENTS

Advertising copy, layout and cuts should be sent direct to Murray Printing Co., 192 Spadina Ave., Toronto 2-B to reach Toronto by the 10th of the month preceding date of issue.

Classified ads payable in advance.

Rates: \$2.50 for each insertion of 40 words or less, additional words 5c each.

News: The Editor will be glad to consider any items of news that may be sent in by readers.



OUR VAULTS WILL SAFEGUARD YOUR GOVERNMENT BOND'S

Keeping your government bonds and other valuables around the house is just asking for trouble, espedially when protection costs only a trifle at the Bank of Montreal. Join the thousands of carefree B of M customers who safeguard their bonds and valuables in our

vaults or in their personal Safiety Deposit Boxes.



If you are short of money, don't sell. your Government Bonds . . . you can borrow on them at specially low rates.

BANK OF MONTREAL

working with Canadians in every walk flife since 1817

Classified Advertisements

RESIDENT IN RADIOLOGY .- Approved residency in Radiology for six months' period at each of the Children's Memorial Hospital and Montreal Neurological Institute. At least one year's experience in Radiology is necessary. \$200.00 per month or \$150.00 per month with board and lodging. Write: Radiologist, Children's Memorial Hospital, 1615 Cedar Avenue, Montreal,

WANTED.-General practitioner for active mining plant at Kilmar, Que. 75 miles from Montreal employing 375 men. Guaranteed minimum income from care of employees, which can be greatly supplemented by other local medical work. No other doctor in community. Surgery with x-ray machine is on the mine premises. Living quarters arranged for. Yearly contract. Present doctor leaves for other work in mid-summer. Apply Box 566, Canadian Medical Association Journal, 3649 University Street, Montreal.

WANTED .- Physician to act as Medical Director for leading Pharmaceutical Manufacturer. Duties will include direction of copywriting staff, attendance at medical conventions and direction of clinical studies outside the organization. Please forward information as to age, religion, marital status, medical training and experience to Box 567. Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Staff physician for 160 bed Sanatorium—active treatment and diagnostic clinic associated with modern medical and surgical care of the tuberculous. Self-contained four room apartment partly furnished available. Apply Medical Superintendent, Freeport Sanatorium, Kitchener, Ontario.

WANTED .- Doctor, aged 26, married, has pneumothorax, desires position in sanatorium. Has experience in general sanatorium work and anæsthesia and would like to combine both. Write to W. A. Oatway, Kingston General Hospital, Kingston, Ontario.

WANTED.-A Resident Doctor for prosperous village with many outlying districts. A remunerative practice. For particulars address: The Secretary, Women's Institute, Havelock, New Brunswick.

WANTED .- Applications are invited for the post of wholetime RADIOLOGIST (now vacant) to take charge of the X-ray Diagnostic and Therapy Departments of the BARBADOS GENERAL HOSPITAL (302 Beds). The work of these Departments cover in general the work of the Island.

Applicants' must be registered medical practitioners with Hospital experience of X-ray Diagnostic and Therapy work.

Salary £1,000 per annum plus a temporary Cost of Living Allowance of £140 per annum. No quarters or private practice.

The appointment, which is renewable, is for 3 years subject to 3 months' notice on either side to terminate agreement.

Annual leave of 28 days on full pay.

First-class passage by sea direct to Barbados will be paid by Hospital. In the event of the successfull applicant being married, Hospital will assist with passage of this officer and his family to the extent of a sum not exceeding £200. In case of service for less than 3 years a proportionate part of passage money must be refunded unless appointment is relinquished on medical certificate of ill health due to service. Return passage paid on satisfactory completion of contract or on medical certificate of ill health due to service.

Applicants must state age, place and date of graduation, professional qualifications and all particulars of 'previous experience; and must forward a recent photograph and professional and personal testimonials. A medical certificate of physical fitness at time of application is also essential.

Canadian graduates must hold qualifications registrable in

Candidates holding a U.S.A. degree must be registered in the State of New York.

Applications should be forwarded as soon as possible by Air Mail to the Medical Superintendent, General Hospital, Barbados, B.W.I., from whom further particulars may be obtained.

Classified Advertisements

WANTED.—Qualified aniesthetist to do obstetrical aniesthesia in the Royal Victoria—Montreal Maternity Hospital. In reply please state experience and degrees held. Salary to be arranged. Apply to: The Superintendent, Royal Victoria Hospital, Montreal, Que.

WANTED.—Assistant for general practice. This is a good opportunity to learn, earn and become a partner. Extensive practice; 40 hed hospital, fully equipped office with two doctors Position available immediately in Western Canada's "Town of the Year". Apply to Drs. Werthenbach and Wylic, Unity. Saskatchewan.

WANTED.—Specialist in Eye, Ear, Nose and Throat. Specially attractive opening with well equipped office. Ontario City 40,000. Growing City with every advantage for Doctor and family. No financial outlay required. Assured income. Apply Dox 565. Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—Fellow of the Royal College of Surgeons wishes to purchase active surgical practice in large town or city with adequate hospital facilities. Would be willing to pay for partnership in busy general practice with view to forming small group practice. Apply to: Dr. J. H. Bateman, 4930 Sherbrooke Street West, Westmount, Que.

WANTED.—Qualified Anæsthetist to have charge of Department of Anæsthesiology, 135 bed Children's Hospital. In reply please state experience and degrees held. Salary to be arranged. Apply to Superintendent, Children's Hospital of Winnipeg, Winnipeg, Manitoba.

WANTED.—Assistant or partner for well-established Eye, Ear, Nose and Throat practice in southern interior of British Columbia. Must be fully experienced, preferably certificated in Ophthalmology by Royal College, capable of handling that branch of the practice. Ideal climate and living conditions. Write to Box 562, Canadian Medical Association Journal, 3640 University Street, Montreal.

WANTED.—(1) A House Surgeon and Anæsthetist. Salary £600 per annum, plus a témporary cost of living allowance at the rate of £140 per annum. Experience in modern methods of anæsthesia essential. Preference given to candidates who hold Diploma in Anæsthesia.

(2) A House Surgeon. Salary £450 per annum, plus a temporary cost of living allowance at the rate of £122, 10/per annum. Preference given to candidates who have had experience in administering anæsthetics.

In each case quarters fully furnished for a single man, free water and lighting allowance are provided. No local rates.

The appointments, which are renewable, will be for either $1\frac{1}{2}$, 2 or 3 years, subject to 3 months' notice on either side to terminate engagement. Candidates must state whether they wish to be engaged for $1\frac{1}{2}$, 2 or 3 years.

. Single transport direct to Barbados will be paid, a proportionate part to be refunded if term of service for which candidate is engaged be not completed, except engagement is relinquished on medical certificate of ill health due to service. Return transport paid on satisfactory completion of contract or on resignation on medical certificate of ill health due to service.

Canadian graduates must hold qualifications registrable in England. Candidates holding a United States degree must be fegistered in State of New York.

Applications, stating age and date of graduation, accompanied by a recent photograph, a medical certificate of physical fitness at time of application and recent professional and Personal testimonials, should be sent by air mail to Medical Superintendent, General Hospital, Barbados, B. W. I., from whom all particulars of duties, etc., may be obtained.

Applicants for post of House Surgeon and Anæsthetist should also forward a recent certificate of proficiency in administering anæsthetics as Resident Anæsthetist of a Hospital of not less than 200 beds, or of a post-graduate course in Modern Anæsthesia at a recognized medical school.

POST-GRADUATE COURSE IN SUNUL.

(Designed for candidates for the F.R.C.S.[C.])

The Surgical Staff of the Royal Victoria Hosp tal are conducting their second annual course in surgery designed especially for those wishing to write the F.R.C.S.[C.] in October. The course consists of two sections. The correspondence portion will commence April 1st and will consist of selected reading with weekly written questions. The clinical and didactic full time course will be held at the Hospital starting the first week. in August and will last two months. All the required work will be presented by the various specialists and will consist of Physiology, Anatomy, Pathology, X-Ray in association with General and Special surgery.

Fee for course, \$225.00.

Address applications or inquiries to:

THE POST-GRADUATE BOARD Royal Victoria Hospital Montreal

Classified Advertisement

FOR SALE.—12 years' established practice in well of 10.000 population in Eastern Township. Thoroughly make and office. Hospital in town. Apply Box 55, Candin Medical Association Journal, 3640 University and Medical

FOR SALE.—In Eastern Ontario of microstructed doctor's residence, office suite with residence. Attached heated garage. Extremely good location of the suite and schools. All hospital facilities the suite opportunity for practice of the suite of the suit

well-equipped for diagnostic and the qualifications, experience and Medical Association John 1997. Street, Montreal, Que.

WANTED.—Vct Now completing * medicine desires Ontario. Aval' 30 Imperial S'

ramostic and there

Law, Saskate

sidress application

∕⁄∂ and 100

WAN 1 —for Moor Present ; Superln;

reprising doctor.

I farmished one of and the country of English of the country of English of the country of th

n ge Quel ro.

STUDY

For Canadian and American Practitioners

Are you preparing for any Medical, or Surgical Examination?

Send Coupon below for valuable publication

"GUIDE to MEDICAL EXAMINATIONS" PRINCIPAL CONTENTS

The Examinations of the Qualifying Bodies.
The F.R.C.P. & S. of Canada.
The M.R.C.P. London and Edinburgh.
Diploma in Anæsthetics.
The Diploma in Tropical Medicine.
Diploma in Ophthalmology.
Diploma in Psychological Medicine.
Diploma in Child Health.
Diploma in Physical Medicine
Diploma in Industrial Medicine.
Diploma in Industrial Medicine.
Diploma in Laryngology.
You can prepare for any of

You can prepare for any of these qualifications by postal study at home and come up to Great Britain for examination. We specialize in Post-graduate tuition. Courses for all Canadian and all Canadian and U.S.A. qualifica-

THE SECRETARY
MEDICAL
CORRESPONDENCE
COLLEGE

19 Welbeck Street, London, W.1.

Sir,—Please send me a copy of your "Guide to Medical Examinations" by return.

John Harvey Kellogg, M.D., Supt.

BATTLE CREEK SANITARIUM

1876 - 1943



A general medical institution fully equipped for diagnostic and therapeutic service. Close cooperation with home physician in management of chronic diseases.

For rates and further information, address Box 49 THE BATTLE CREEK SANITARIUM. BATTLE CREEK, MICHIGAN James T. Case, M.D. Chairman of the Board

University of Toronto SCHOOL of HYGIENE



Diploma in Public Health

The next course will commence on

September 22, 1947

For information regarding this course and the

DIPLOMA IN INDUSTRIAL HYGIENE

write, The Director, School of Hygiene, University of Toronto, Toronto, Ontario.

FELLOWSHIP OF POSTGRADUATE MEDICINE

1, Wimpole Street, London, W. 1.

with which is associated many of the General and Special Hospitals in London, is making every effort to provide postgraduate instruction and will be glad to give information regarding the facilities available. It must, however, be understood that facilities are still greatly curtailed.

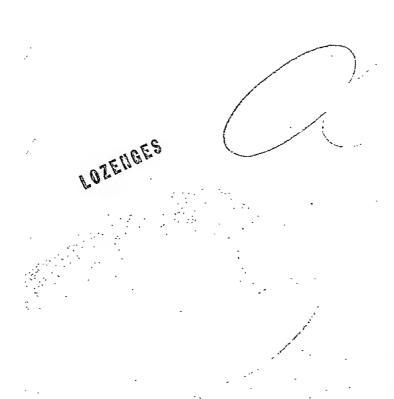
It is still impossible to arrange and publish the usual list of instruction for the whole year. Courses are arranged as it is found practicable to do so, and special attention is paid to the requirements of candidates for the M.R.C.P. (London) and F.R.C.S. (England) examinations.

Courses arranged by the Fellowship of Postgraduate Medicine are open only to Members; annual subscription, from month of joining, 10/6d.

The "Overseas Postgraduate Medical Journal" is published quarterly; annual subscription, 30/-, post free.

> MAURICE DAVIDSON, M.D., F.R.C.P., DAVID LEVI, M.S., F.R.C.S.

> > Honorary Secretaries



to aid in the prevention of dental caries

The efficacy of this product was demonstrated in a study of 512 children. Of these, 155 who received "Enziflur" showed an increase in dental caries of only 15%, while those who served as controls showed an increase of more than 65%. In a third group that received calcium fluoride alone, the increase was 32%.

*Strean, L. P. and Beaudet, J. P.: New York State J. Med. 45:2183 (Oct. 15) 1945.

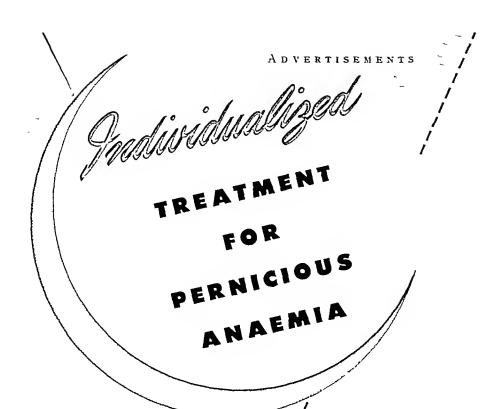
Each "Enziffur" Lozenge supplies:

Calcium Fluoride.....2 mg. Vitamin C.......30 mg. Vitamin D....400 Int. Units

Bottles of 30 and 100







AYERST LIVER EXTRACT

No. 499 — Each c.c. contains not less than 10 Units. In 1 c.c. ampoules (boxes of 25 and 100) and in 10 c.c. rubber-capped vials.

No. 530 — Each c.c. contains not less than 15 Units. In 10 c.c. rubber-capped vials.

AYERST LIVER EXTRACT

No. 936 — A palatable liquid, each tablespoonful of which represents the anti-pernicious anaemia principle obtained from one-quarter pound of fresh liver. In bottles of 10 ounces.

AYERST LIVER EXTRACT

C A P S U L E S

No. 350 — Prepared from prime liver and concentrated by Collip's modification of Cohn's method. One capsule contains the anti-pernicious anaemia principle obtained from one-third ounce of fresh liver. In bottles of 200 capsules.

ERST LIVER EXTRACT

No. 915 — An active extract of prime liver concentrated by Collip's modification of Cohn's method. Each vial contains the anti-pernicious

anaemia principle obtained from one-half pound of fresh liver. In boxes of 10 vials.

DYBUST AGTS
D PREPARATIONS FROM PRIME LIVER

AYERST, McKENNA & HARRISON LIMITED

Biological and Pharmaceutical Chemists

MONTREAL

CANADA



The Royal College of Physicians and Surgeons of Canada ANNOUNCEMENT OF 1947 EXAMINATIONS

FELLOWSHIP IN MEDICINE

The Examination may be taken in MEDICINE, or in Medicine with emphasis on one of . the following Specialties:

Dermatology and Syphilology Neurology and Psychiatry

Pædiatrics Radiology

FELLOWSHIP IN SURGERY

The Examination may be taken in SURGERY, or in Surgery with emphasis on one of the following Specialties:

Neurosurgery Obstetrics and/or Gynæcology Orthopædic Surgery Urology

CERTIFICATION OF SPECIALISTS

The Examination may be taken in any of the following Specialties which have been approved for certification:

Anæsthesia Dermatology and Syphilology General Surgery Internal Medicine Neurology and/or Psychiatry Neurosurgery Obstetrics and/or Gynæcology Ophthalmology

Orthopædic Surgery Otolaryngology Pædiatrics Pathology and/or Bacteriology Physical Medicine Plastic Surgery Radiology: Diagnostic and/or Therapeutic Thoracic Surgery Urology

Applications must be received before June 30th for the Examinations which will be held in October and November, 1947.

In both the Fellowship and Certification all candidates must take the written and the oral

and clinical portions of the Examination.

Information regarding the dates of the Fellowship and the Certification Examinations, copies of the Regulations, and Application Forms, may be obtained from:

JOHN E. PLUNKETT, M.D., F.R.C.P.[C], Honorary Secretary, The Royal College of Physicians and Surgeons of Canada, 150 Metcalfe Street, Ottawa, Canada

THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL

(ORGANIZED 1881)

(The Pioneer Post-Graduate Medical Institution in America)

UROLOGY

A combined full time course in Urology covering an academic year (8 months). It comprises instruction in pharmacology; physiology; embryology; biochemistry; bacteriology, and pathology; practical work in surgical anatomy and urological operative procedures on the cadaver; regional and general anesthesia (cadaver); office gynecology; proctological diagnosis; the use of the ophthalmoscope; physical diagnosis; roentgenological interpretation; electrocardiographic interpretation; dermatology and syphilology; neurology; physical therapy; tology and syphilology; neurology; physical therapy; continuous instruction in cysto-endoscopic diagnosis and operative instrumental manipulation; operative surgical clinics; demonstrations in the operative instrumental management of bladder tumors and other vesical lesions as well as endoscopic prostatic resection.

FOR THE GENERAL PRACTITIONER

Intensive full time instruction in those subjects which are of particular interest to the physician in general practice, consisting of clinics, lectures and demonstrations in the following departments—medicine, pediatrics, cardiology, arthritis, chest diseases, gastroenterology, diabetes, allergy, dermatology, neurology, minor surgery, clinical gynecology, proctology, peripheral vascular diseases, fractures, urology, otolaryngology, pathology, radiology, The class is expected to attend departmental and general conferences.

ROENTGENOLOGY

A comprehensive review of the physics and higher mathematics involved, film interpretation, all standard general roentgen diagnostic procedures, methods of application and doses of radiation therapy, both x-ray and radium, standard and special filioroscopic procedures. A review of dermatological lesions and tumors susceptible to roentgen therapy is given, together with methods and dosage calculation of treatments. Special attention is given to the newer diagnostic methods associated with the employment of contrast media, such as bronchography with Lipiodol, uterosalpingography, visualization of cardiac chambers, peri-renal insuffiction and myelography. Discussions covering roentgen departmental management are also included.

ANESTHESIA

A three months full time course covering general and regional anesthesia, with special demonstrations in the clinics and on the cadaver of caudal, spinal, field blocks, etc.; Instruction in Intravenous anesthesia. oxygen therapy, resuscitation, aspiration bronchoscopy.

FOR INFORMATION ADDRESS

MEDICAL EXECUTIVE OFFICER, 345 West 50th St., New York City 19

SANATORIUM PRÉVOST Inc.

CARTIERVILLE (Montreal)

Diseases of the Nervous System and mild Psychoneuroses. Convalescence. Intoxications (Alcohol and Narcotics). All pyretic treatments. Electric-shock therapy.

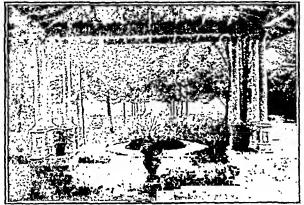
Physiotherapy.

STAFF

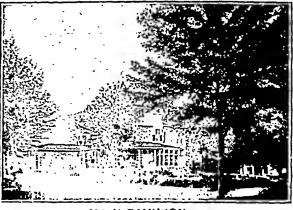
DR. JEAN SAUCIER

DR. ROMA AMYOT

Medical Director



AN ALLEY FACING THE RIVER

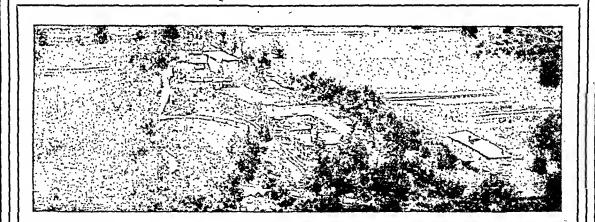


MAIN PAVILION

Beautiful location on the shores of Riviere Des Prairies, 20 minutes from the heart of the metropolis, in the midst of a 600,000 sq. ft. park. Three pavilions, equipped to provide rest, quietness and home atmosphere. Experienced Nurses.

4455 GOUIN BLVD. W. — MONTREAL
Telephone BYwater 2405

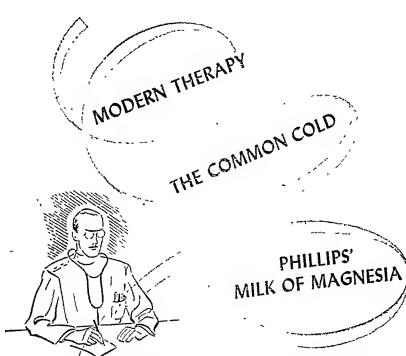
Booklet on request.



HOMEWOOD SANITARIUM

In addition to the scientific approach to the patients' problems, Homewood stresses the advantage of a homelike environment for nervous and mild mental cases under the individual care of physicians and the thoroughly trained psychiatrie staff. The above fine pictured buildings, surrounded by 75 acres of landscaped lawns, terraces and wooded hills, accommodate 140 patients. Occupational and recreational therapy to brighten the days and evenings assists in making the hours pass pleasantly and helpfully. Write for illustrated folder.

F. H. C. Baugh, M.D., Medical Supt. The Homewood Sanitarium of Guelph, Ontario, Limited



At the first sign of a cold, many physicians feel that treatment should include a mild, yet thorough laxative. Phillips' Milk of Magnesia provides mild laxation, and in addition, is an effective antacid for gastric acidity.

Prescribed as a laxative—it is gentle, smoothacting without embarrassing urgency.

Prescribed as an antacid—affords effective relief. Contains no carbonates, hence no discomforting bloating.

DOSAGE: Laxative: 2 to 4 tablespoonfuls

Antacid: 1 to 4 teaspoonfuls, or 1 to 4 tablets

Phillips' Milk of Magnesia

prepared only by

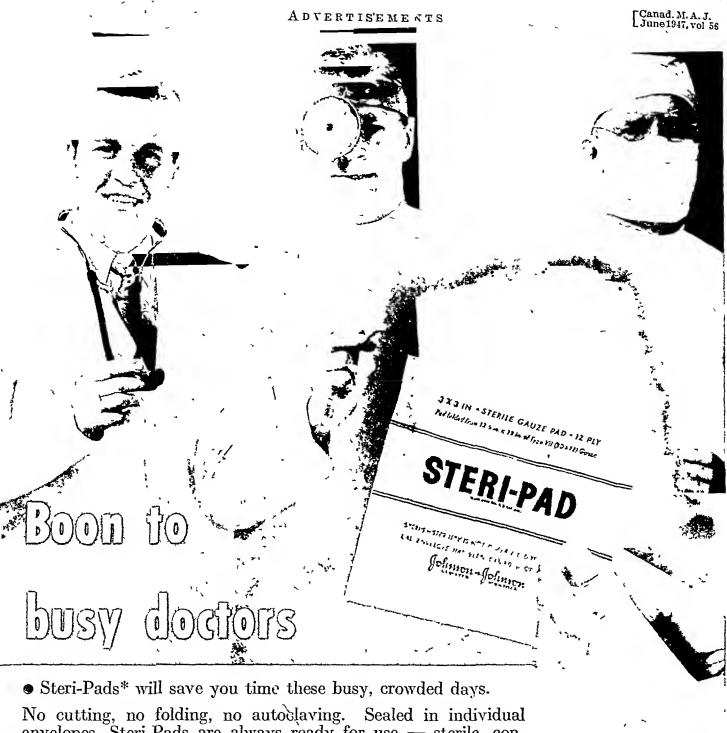
THE CHAS. H. PHILLIPS CO. DIVISION

of Sterling Drug Inc.

1019 ELLIOTT STREET, WEST . WINDSOR, ONTARIO

FACKAGING Liquid 4-oz. borile 12-oz. borre 26-cz. bowle Tablets

box of 30's bottle of 75's bottle of 200 s

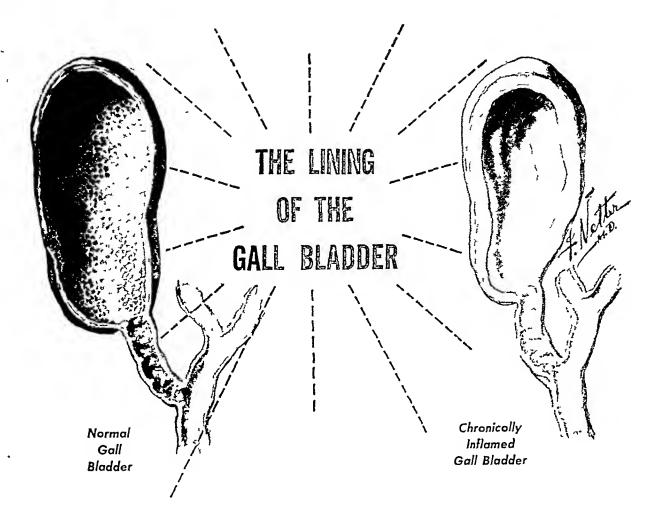


No cutting, no folding, no autoclaving. Sealed in individual envelopes, Steri-Pads are always ready for use — sterile, convenient, inexpensive.

Two sizes -3'' and 4'' squares, in boxes of 25 and 100.

*Trademark of Johnson & Johnson

X 3 IN STERILE GAUPE PADS 12 PL



The normal gall bladder lining is a soft, delicate mucosal layer characterized by numerous minute pockets over its surface. When inflamed it becomes thickened and coarse to a variable degree. Biliary stasis is believed to be a major factor in inciting a catarrhal inflammation which, with secondary infection, may progress to a more virulent cholecystitis, with or without cholelithiasis

DEHYDROCHOLIC ACID ARMOUR is a powerful hydrocholagogue and choleretic. It induces a copious outflow of thin. watery bile which is low in total solids... in effect, a physiologic "flushing-out" of the biliary tract. It is indicated in the medical management of chronic gall-bladder cases with or without stones, provided there is no

actual obstruction. It is of value also in functional hepatic insufficiency, in liver poisoning. by drugs or anesthetics in cirrhosis, and in chronic passive congestion of the liver. It is contra-indicated in obstructive jaundice

Supplied in 3¾ grain tablets — bottles of 50, 100, 500. Dosage 1 to 3 tablets t.i.d. with meals. Literature on request.

Dehydrocholic Acid

Have confidence in the preparation you prescribe—specify "ARMOUR"

THE ANNOW LABORATORIES



PYRIBENZAMINE, for oral use:

Tablets, bottles of 50 and 500.

ISSUED

ANTISTINE, for parenteral use:

Ampoules, boxes of 5, 20 and 100. Also available in tablet form for oral use, in bottles of 50 and 500.

PYRIBENZAMINE

ANTISTINE

From the first signs of Cottonwood pollination in April, to the end of the Ragweed season in September, in most cases complete alleviation of the discomforts of seasonal allergies is assured by the use of Pyribenzamine Tablets, or Antistine injections.

Detailed Literature on both preparations will be sent upon request.

CIBA COMPANY LIMITED . MONTREAL



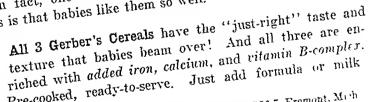
Are babies too much like people?

Babies would be a lot less trouble if they'd automatically like all the things that are good for them.

But they won't.

So Gerber's can't stop at making baby cereals that are merely "good for" babies. It isn't nearly enough that the high nutritional values of Gerber's Baby Foods please doctors.

We have to be specialists in making foods that babies like better too. In fact, one of the reasons Gerber's please so many mothers is that babies like them so well.



Pre-cooked, ready-to-serve. Just add formula or milk

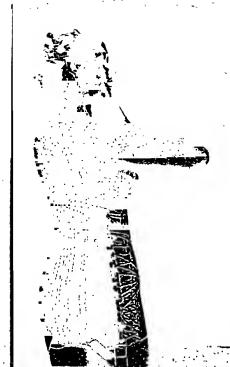
A card to Gerber's, Dept. CJ6 7, Fremont, Mich or 49 Wellington St. East, Toronto 1, (int, will bring you samples of the cereals, together with professional reference cards



Cereal Food

Strained Oatmeal

Barley Cereal



For patient of intermediate or stocky type-of-build.

FOR AMBULATORY PATIENTS

with

INJURIES OR DISEASES

of the

LUMBAR SPINE

CAMP lumbösacral supports are widely recommended by orthopedic surgeons and physicians.

An important factor in the good results reported from their use is that they extend downward over the sacroiliac and gluteal regions. The Camp adjustment provides exceptional restraint of movement.

In more severe lesions, aluminum uprights or the Camp spinal brace are easily incorporated.

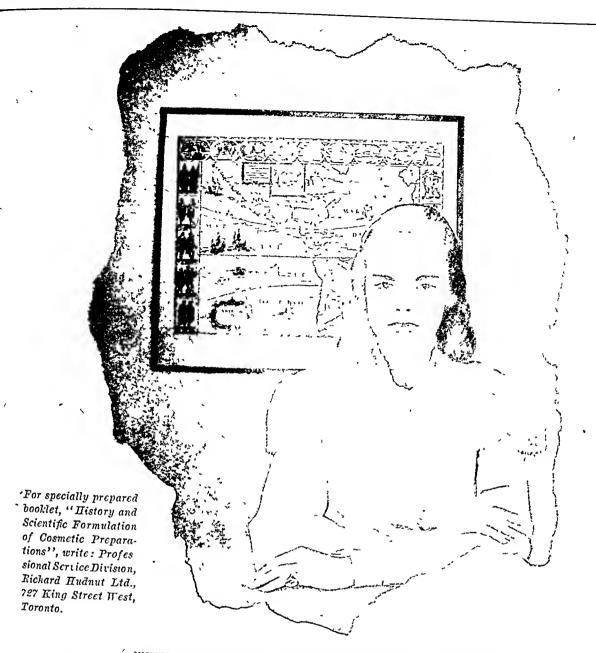
Camp lumbosacral supports are moderately priced.

For patient of thin type-of-build.



ANATOMICAL SUPPORTS

S. H. CAMP & COMPANY OF CANADA, LTD. Manufacturers, Windsor, Ontario, Canada World's largest manufacturers of Scientific Supports
Offices at 19 Hanover Square, London, W. 1, England • Jackson. Mich.
200 Madison Avenue, New York City • Merchandise Mart, Chicago, III.



WHEN PRESCRIBING A "HYPO-ALLERGENIC" FACE POWDER, you can

safely suggest DuBarry . . . a well-known, widely-sold brand that women recognize and one of the many DuBarry Beauty Preparations accepted for advertising by the Canadian Medical Association Journal and the Journal of the American Medical Association

RICHARD HUDNUT

727 KING STREET WEST, . TORONTO, ONTARIO

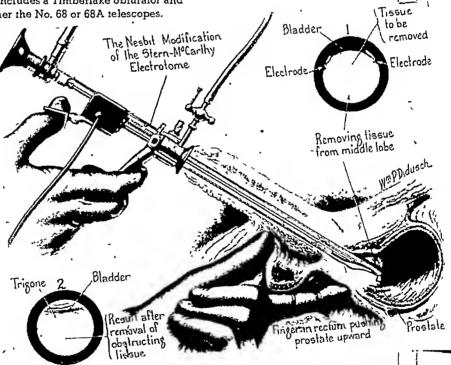
The Nesbit Modification

of the STERN-MCCARTHY VISUAL PROSTATIC ELECTROTOME

This precise and delicately balanced instrument permits one-handed manipulation enabling the operator to simultaneously palpate the prostate gland rectally with his free hand while the resection of tissue is being performed. The thumb advances the loop against spring pressure which in turn aids control of the loop during its return excursion

The guide rod has been relocated to assure smooth forward and backward excursion of the carriage. Binding or sticking is reduced to a minimum. The insulation block has been enlarged and insulation properties increased to permit use of heavier current loads.

The instrument includes a Timberlake obturator and accommodates either the No. 68 or 68A telescopes.



ESTABLISHED IN 1900



BY REINHOLD H. WAPPLER

AMERICANCY

FREDERICK J. WALLACE
PRESIDENT

MAKERS, INC.

1241 LAFAYETTE AVE., NEW YORK 59, N. Y



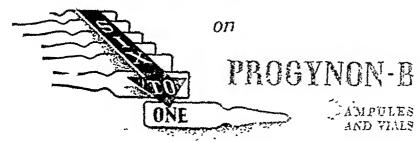
Distributed in Canada exclusively by

INGRAMI& BELL

OTROPOT

MONTREAL . WINNIPEG . CALGARY . VANCOUVER

Announcing a 30% PRICE REDUCTION*



Alpha-estradiol benzoate, primary estrogenic hormone ester for intramuscular injection, is six times as potent as ketohydroxyestrin (estrone, theelin), and exerts its action over a much longer period, permitting smooth control.

INDICATED IN THE TREATMENT OF menopausal syndrome, hypogonadism, amenorrhea, juvenile gonorrheal vaginitis, senile vaginitis, vaginal atrophy and pruritus vulvae.



Schering CORPORATION LIMITED
137 ST. PETER ST. MONTREAL 1, F. Q.

"This great reduction in the cost of potent and effective medication has been made possible by Schering's tremendously increased facilities and new technical advances in production.

The Analgesic for home use...



The Bayer Laboratories have specialized in the production of ASPIRIN for over forty-six years. Only the finest and purest ingredients are used in its manufacture. Every batch made is subjected to complete and rigid scientific controls. Seventy different tests and inspections have been developed to insure the quality, purity and uniformity of the finished product.

66ASPIRIN'99

Only the Physician is qualified to diagnose impaired hearing...



... and Zenith is Guided by this Ethical Policy!

Consult your doctor ...

There's more than one way to dispense hearing aids. But we think Zenith's way of encouraging the hard of hearing to consult their physicians before they buy, is the best way.

That's why this statement appears in advertising for the Zenith Radionic Hearing Aid:

"Consult your doctor to make sure that your hearing deficiency is the type that can be benefited by the use of a hearing aid."

First and foremost—this method keeps the physician in the hearing aid picture by relying upon his professional training, experience and skill.

Second—it enables Zenith to do away with pseudoscientific "laymen in white coats" who increase the selling costs of hearing aids without increasing their quality or efficiency.

Exactly because Zenith does keep the diagnosis of impaired hearing in the physician's hands, we can sell a superior hearing aid direct...at about one-fourth the price of comparable instruments. We sell it direct under a guarantee of complete satisfaction or money back.

This policy has enabled Zenith to bring a fine quality hearing aid within reach of all Canadians. Thousands now hear well for the first time! No small part of our success is due to the splendid cooperation of the members of the Canadian medical profession. For this we thank you—and pledge our continued effort to help you rehabilitate your hard of hearing patients.

THE NEW ZENITH RADIONIC HEARING AID

Only \$40 direct-by-mail. Complete, ready-to-wear with Neutral-Color Earphone and Cord.

THE NEW ZENITH BONE-CONDUCTION HEARING AID

For the very few whose physicians recommend this special type. Only \$50 direct-by-mail. Complete, ready-to-wear with Neutral-Color Bone-Conduction Receiver and Cord.

RADIONIC
HEARING AIDS
BY THE MAKERS OF ZENITH RADIOS

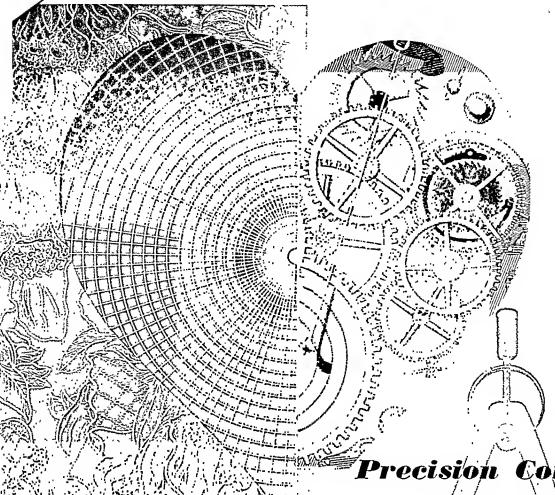
ZENITH RADIO CORPORATION OF CANADA, L'd

Guaranty Trust Bldg. Dept M-67
P. O. Box 30, Windsor, Ontano
Please send me free literature on the Zenith Hearing Aids.

Name

Address

Province



Precision Counts

In every line of scientific endeavour there is a constant demand for any device which will reduce or eliminate the margin of error. Digoxin, a pure crystalline glycoside, * provides the medical profession with just such an aid Because it is a definite chemical substance, constant in/composition and uniform in potency, it kan be prescribed with precision in terms of / weight of the pure drug, and its results accurately predicted. Literature on request.

* Isolated from the leaves of digitalis lanata by the Wellcome Chemical Works (England).

Fereral zsi: Tabloid' mass Digoxin 0.25 mg (gr. 1/260 approx.)
Bottles of 25, 100 and 500.

Solution of Digoxin (B.W. & Co) 0.5 mg (gr. 1/130 approx. in x c.c. Bottles of 30 c.c.

Fer paresteral use: Wellcome' 1000. Injection of Digoxin 0.5 mg (gr. 1/130 approx.) in 1 c.c. Boxes of 11, 100.

TTCOME & CO. (The Wellcome Foundation Ltd.) MONTREAL



Better Turgery

WITH HIGHER STITCH VERSATILITY

The unique construction of the Singer Surgical Stitching Instruments—which functionally incorporate needle, needle holder, and suture 'supply in one unit-permits formation of an unusual variety of stitches. • Standard stitches are accomplished more quickly and accurately, and many new continuous stitches are made possible—to hold tissues in juxtaposition with more equalized tension and with less resultant scar tissue formation. This unique versatility derives largely from the continuous feeding of suture material. Any standard suture material may be used—and any of 47 different needle sizes and styles—from the very large down to the very small. • Higher stitch versatility is just one of the many new features of the Singer Surgical Stitching Instruments which have appealed increasingly to discriminating surgeons. May we forward a comprehensively illustrated booklet with full details?

SINGER SURGICAL STITCHING INSTRUMENTS

LARGE MODEL
For general surgery
and the specialties

SMALL MODEL For delicate syturing

New motion picture available for showing on "Treatment of the Major Neuralgias".

SINGER SEWING MACHINE COMPANY

CM-f7

Surgical Stitching Instrument Division, Canada 254 Yonge St., Toronto - 424 Portage Ave., Winnipeg 700 St. Catherine St., Montreal.

Without obligation please send copy of illustrated booklet.

Quick Relief for PRURITUS

due to INSECT BITES • IVY POISONING, SUNBURN • Localized Vesicular Areas

CALAMATUM (NASON'S) is an effective antipruritic cream embodying Calamine with Zinc Oxide and Campho-Phenol in a non-greasy ointment base, packaged in a safe, handy 2-oz. tube.

For the immediate and long-lasting relief of itching and general discomfort of many localized skin affections so prevalent during the summer months — prescribe CALAMATUM (Nason's). It is a cream, not a lotion; it dries immediately, will not rub off and requires no bandaging; properties which encourage the patient to apply it regularly and as often as the physician directs.

THERAPEUTIC ADVANTAGES

CALAMATUM (Nason's) adheres to the lesion, exercising its full efficacy for hours. At the same time it acts protectively, helping to localize the affection by preventing spread of the exudate. The camphor and phenol content

quickly relieves itching and by thus eliminating the desire for relief by scratching helps to minimize the danger of secondary infection.

CONVENIENCE OF CALAMATUM

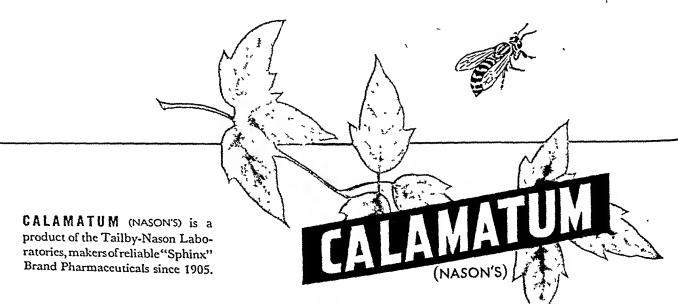
For best results an anti-pruritic must be used continuously. In this respect a quick-drying adhering cream has obvious advantages over the commonly used calamine lotion. CALAMATUM will not rub off or soil the clothing so that bandages are unnecessary. The tube is more easily and safely carried in pocket or traveling bag than a fragile bottle of liquid. Renewed applications can be made easily and without embarrassment even in public places.

COMPLIMENTARY PHYSICIAN'S SAMPLE

If you wish to try CALAMATUM (Nason's) for yourself, send name and address for a generous sample tube.

CALAMATUM (Nason's) is packaged in 2-oz tubes. Obtainable at leading prescription druggists or direct from the manufacturer.

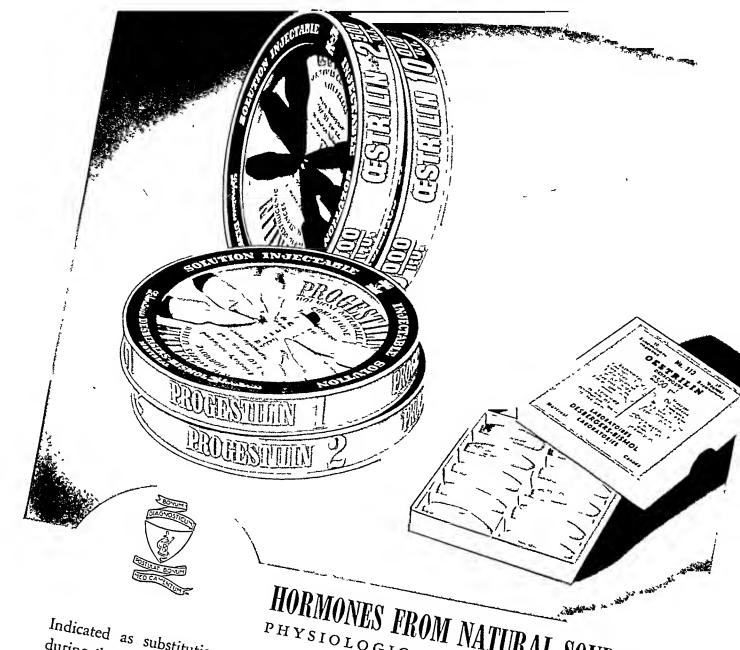
TAILBY-NASON COMPANY, Kendall Square Station, Boston 42, Mass.





DESBERGERS-BISMOL LABORATORIES

MONTREAL Biological Specialties CANADA



HORMONES FROM NATURAL SOURCES PHYSIOLOGICALLY STANDARDIZED

Indicated as substitution therapy to re-establish and maintain normal menstruation during the reproductive period, and to correct menopausal disturbances. OESTRILIN:

Natural polyvalent folliculin. Oily solution for intramuscular injection. TWO

Ampoules of 1 c.c., 2,500 I.U. Boxes of 6 and 25. STRENGTHS

Ampoules of 1 c.c., 10,000 I.U.
Boxes of 6 and 25. OESTRILIN

PROGESTILIN: Lipoid complex of corpus luteum. Oily solution for intramuscular injection.

Ampoules of 1 c.c., 1 I.U. Ampoules of 1 c.c., 2 I.U. Ampoules of 1 c.c., 5 I.U.

DESBERGERS-BISMOL LABORATORIES MONTREAL

This constant washing



Doctors will find Nivea Creme especially useful for keeping their hands in good condition. A little massaged into the hands after operating counteracts the dryness of skin that results from constant "scrubbing up" and contact with antiseptic solutions.

Nivea is also a useful corrective measure in cases where disease has left the skin scaly and irritated, and it is an excellent cleansing medium when soap and water is contra-indicated.

Nivea Creme is a water-in-oil emulsion containing Eucerite, a mixture of solid alcohols closely related chemically to the fatty substances present in skin secretions. It penetrates the epidermis and replenishes any deficiency of the skin's natural fatty elements.

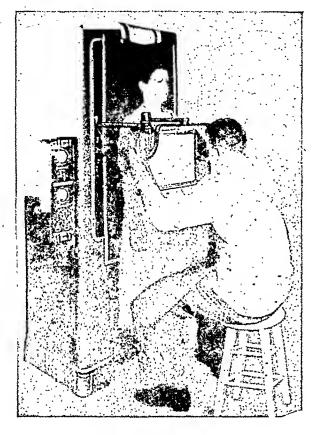
NIVEA CREME

Professional Pack containing 1lb. 370A
*NIVEA' and 'EUCERITE' are registered Trade Marks

Made in Canada by NIVEA PHARMACEUTICALS LTD., 357 College Street, TORONTO Distributing Agents: VANZANT & COMPANY, 357 College Street, TORONTO

The KELEKET K-30 VERTICAL FLUOROSCOPE





Compact Complete Fully Shockproof

Thousands of Canadian doctors regard this fluoroscope as a great aid to accurate diagnosis. Through the years, canstant improvements and developments by Keleket have resulted in this leader among fluoroscopes.

The K-30 Unit requires a farmerly unobtainable minimum of flaar space. Only 40 inches by 48 inches. The overall height is 6 feet, 4 inches.

An exclusive Keleket feature_

Fluoroscopic screen

Orthodiagraphic equipment_

The unique Keleket screen assembly— has no protruding side assembly. Offers the maximum in flexibility to follow natural bady contours. Central suspension eliminates entirely any possibility of pinching saft body tissues. invaluable in pulmonary examinations, makes fluarascopy of

> recumbent patients on stretchers a very simple operation. High intensity type, 12 by 16 inches, Pattersan Type "B", affers ample caverage. The transverse travel is 14 inches and vertical

travel is from 32 ta 64 inches.

is available and may be readily attached, making the K-30 an ideal instrument far measuring and recarding patient's heort.

For more detailed information on the Keleket K-30 Vertical Fluoroscope send for catalogue 86440. Available at the X-Ray and Radium Industries Ltd., office nearest you.



MONTREAL

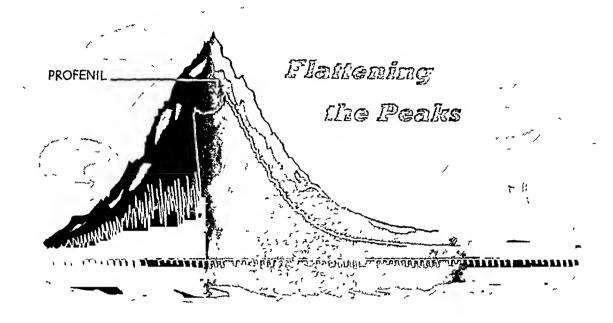
QUEBEC CITY

EDMONTON

VANCOUVER

CALGARY

WINNIPEG



Clinical results with PROFENIL* in smooth muscle spasm parallel the findings in experimental studies.

Irrespective of the therapy employed in gastrointestinal or biliary disease, Profenil is suggested as a routine measure for the control of the associated spasm.

Tablets for oral use contain 0.06 Gm of Profemil citrate.

Ampoules for parenteral use contain 0.045 Gm. of Profenil hydrochloride.

Suppositories for rectal use contain 0.048 Gm and 0 024 Gm. of the base (Adult and Child).

*The Review of Gastroenterology. Vol. 12, Number 6, pages 436 439, Nov.-Dec. 1945.

*Medical Times. Vol. 74, Number 11, Pages 305-306-307 & 320, Nov. 1946.



(bis - gamma - phenyl - propylethylamine)



TORONTO

MONTREAL

NEW AND IMPROVED TREATMENT FOR

CABIES



MOMENTOUS STEP FORWARD in the treatment of Scabies was taken with

the first introduction of SCABANCA. Now we offer the practitioner a new improved treatment which ELIMINATES two formerly necessary steps—BATH. ING and DISINFESTATION. With the addition of Benzocaine as a powerful ovicide all the efficacy of treatment is fully preserved and the clinical evidence shows that no toxic symptoms manifest themselves. In most cases the Acarus and its ova were completely eliminated in a SINGLE TREATMENT (Currey).

Eight years ago the Anglo-Canadian Drug Company introduced the Benzyl Benzoate Lotion SCABANCA to this continent (after the work done by Kissmeyer, Copenhagen). Since then several thousand cases have been successfully treated

Full particulars and bibliography available on request.



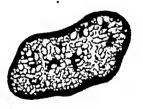
LIBBY'S CUSTARD PUDDING IS THE ONLY HOMOGENIZED CUSTARD



Libby's have developed a custard pudding of superior texture and flavour for infant feeding. Like all Libby's Baby Foods, Libby's Custard Pudding is Homogenized the exclusive Libby way for easier digestion—is well tolerated by infants as early as the fifth week of life.

This and other important findings are supported and discussed in a series of bullefins summarizing tests conducted by Killian laboratories. For copies, physicians and pediatricians are invited to write to Libby's, Chatham. Ontario. Upon request. Libby's would also be pleased to send you a sample tin of Libby's Custard Pudding.

Sibly BABY FOODS are HOMOGENIZED



Food Cell Before Homogenization

Food Cell After Homogenization



Libby, McNeill and Libby of Canada, Limited
Ontario



10 cc. of Blood in LESS than 7 seconds!

Note These ADVANTAGES When You Use

The B-D VACUTAINER*



SIMPLE . . . QUICK

Upon venipuncture blood flaws immediately into B-D Vacutainer. 10 cc. af blaod con be callected in less than 7 seconds—under normal conditions. . . ond blood is collected under sealed canditions ready for serology and chemistry tests.



FOR ADDITIONAL TESTS

When draps are required for vorious Hemotology Tests, press thumb down firmly on filled B-D Vacutainer tube as illustrated. After each drop, release pressure and repeat for successive drops. Yaur seoled unit is mointoined, eliminating autside cantomination.

You will appreciate this new quick method of bland collection. With the B-D Vocutoiner you are ossured af a maximum of useful blood samples of high quality and quantity for the laboratory. The versatility af the B-D Vacutoiner has goined mare and more acceptance from hospitals, clinics and states. Use af the Vocutainer proctically eliminates all hemolysis, and does away with cleoning and sterilization of syringes and other regular equipment . . . bringing welcame relief to a verworked staffs. Such economy is worthy af cansideration.

*A NEW VACUUM TUBE DEVICE FOR COLLECTING BLOOD SAMPLES

B-D PRODUCTS

chade for the Profession

Write for folder showing the B-D Vacutainer in use.

Sow WRIGHT & CO., LTD., TORONTO, CANADA

Concedion Soles Representative for

BECTON, DICKINSON & CO.





ANNOUNCING

A NEW FUNCTIONAL DESIGN THE SPENCERFLEX FOR MEN

Individually designed, cut, and made for each patient, this new support provides: pelvic control, abdominal uplift, freedom for muscular action. Thus, at work or play or during convalescence, the Spencerflex favorably influences coordinated neuromusculoskeletal performance.

Both safe and comfortable because it is individually designed in non-elastic material that will not yield or slip under strain. The extra width at back gives exceptional back support. It is light, flexible—with no pressure on prominent part of hip bones. Perineal straps are not necessary. Very durable, moderate cost. Put on, removed, or adjusted in a moment.

The support pictured at lower left was designed as adjunct to treatment following upper abdominal surgery. Especially helpful in early ambulation and where drainage has been maintained for a considerable period. Completely protects scar without "digging in" at lower ribs. Relieves fatigue and strain—even that caused by deep breathing and coughing—on tissues and muscles of the wound area. We know of no other abdominal support for men which provides these benefits.

For information about Spencer Supports, telephone your local "Spencer corsetiere" or send coupon at right.

SPENCER INDIVIDUALLY SUPPORTS

For Abdomen, Back and Breasts

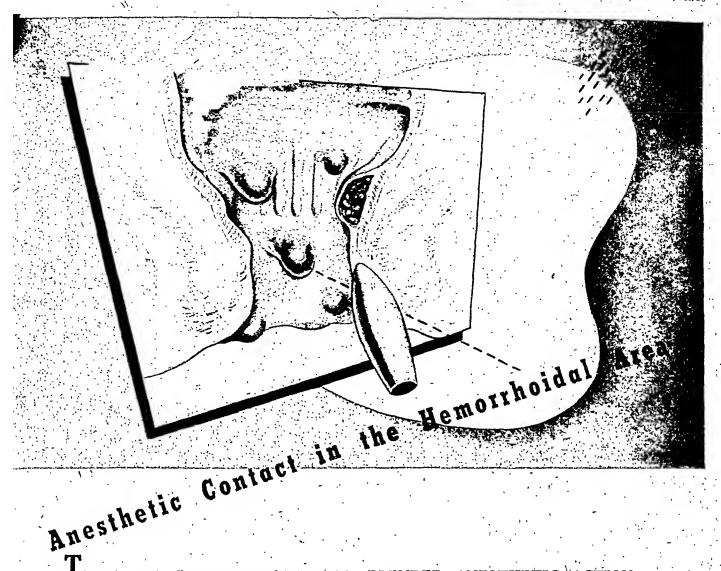
SPENCER SUPPORTS	(CANADA)	LTD.
Rock Island, Quebec		

- In U.S.A.: Spencer, Incorporated 137A Derby Ave., New Haven, Conn.
- In England: Spencer (Banbury) Ltd., Banbury, Oxon

Please send my booklet. How Spencer Supports Aid Doctor's Treatment

Name 2LD.

\ddr\s\s \\ \tag{172-6-47}



he clinical effectiveness of Diothoid Suppositories in relieving hemorrhoidal pain is due in no small part to a unique hydrophilic base that takes up water, disintegrates, and disperses evenly throughout the rectum. Ready miscibility with mucous and serous secretions assures more intimate, uniform, and prolonged contact with surrounding mucosa, and prevents leakage.

OHTO

Brand of Anesthetic and Antiseptic

SUPPOSITORIES

BLENDED ANESTHETIC ACTION-Two local anesthetics are incorporated in Diothoid Suppositories . . one rapid in action, the other prolonged in effect . . . to provide prompt yet long-lasting relief of pain.

ENCOURAGES HEALING—Healing of local anal lesions is stimulated by urea contained in Diothoid Suppositories. Other advantages are their antiseptic and decongestive actions, freedom from narcotics, and correct shape for easy insertion.

Diothoid Suppositories are available at prescription pharmacies in boxes of 12.



"Diothoid" is a Registered Trade Mark of The Wm. S. Merrell Company.

THE WM. S. MERRELL COMPANY CINCINNATI, U. S. A. CANADIAN DEPOT: 1705 ST. CLAIR AVE. W., TORONTO 9, ONT.



Surgeons who prefer a boilable suture can rely on D&G Claustro-Thermal Catgut for a controlled balance of characteristics necessary to meet every surgical situation. Obtainable with swaged-on Atraumatic needles developed in collaboration with eminent surgical authorities . . . Claustro-Thermal Catgut Sutures are the product of D&G research, an assurance of the ultimate in suture quality. Obtainable through responsible dealers everywhere. Davis & Geck, Inc., Brooklyn, New York.

200



They look to you, Doctor

"The destruction of bacteria (disinfection) or interference with

their activities (antisepsis) by chemical means is attempted daily in

proceedings ranging between proved usefulness and utter futility."

Garrod, L.P. and Keynes, Geoffrey L. (1937) Brit. Med. J. 2, 1233.

TF SO FORTHRIGHT a reminder as this should have been addressed to the medical profession itself, how much more does the unskilled user of antiseptics — the ordinary householder - stand in need of guidance!

ALL ANTIBACTERIAL agents — whether for treatment or prevention - are in some degree selective. The choice of the antibiotic or chemotherapeutic substance for treating an established infection is a matter for your skill. But the choice of the antiseptic for preventive use in the home is a matter which calls clearly for your advice. FOR GENERAL USE in unskilled hands, obviously the less selective agent is to be preferred.

now, it is one of the many advantages of 'Dettol' that it is rapidly lethal to a diversity of common pathogenic organisms; to haemolytic streptococci, to Strep.pyogenes,

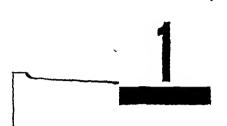
Staph.aurcus, B.coli, B.typhosum and to such wound contaminants as B.proteus and Ps.procyanea. And for all this low selectivity, 'Dettol' is non-toxic, highly bactericidal in the presence of blood, pus and other wound debris, pleasant in smell and nonstaining to linen or the skin.

rrs high germicidal efficiency, safety and pleasantness have won preference for 'Dettol' in all the leading maternity hospitals of Canada. The value of such a non-poisonous antiseptic for prompt unsupervised use in households (where there may be young children) needs no emphasis.

'DETTOL' OBSTETRIC CREAM is a preparation of 30 per cent. 'Dettol' in a suitable vehicle, the right concentration for immediate use in obstetrics. Applied to the patient's skin and to the gloves of the operator, it forms for more than two hours a dependable barrier against re-infection by haemolytic streptococci.



USEFUL PRODUCTS FOR *busy* Physicians



PENICILIN OINTMENT Schenley

contains 1,000 units of penicillin calcium per gram of special base...effective in such cutaneous infections as impetigo contagiosa, folliculitis, and others also caused by penicillin-sensitive organisms. Supplied in 1-oz. tubes.

2

PENICILIN OPHTHALMIC OINTMENT Schenley

contains 2,000 units of penicillin calcium per gram—added potency to compensate for dilution by tears—for local application in superficial eye infections caused by penicillin-sensitive organisms. Supplied in 1/8-oz. ophthalmic tubes.

Schenley Laboratories, Inc.

EXECUTIVE OFFICES: 350 FIFTH AVENUE . NEW YORK 1, N. Y.

O Schenley laboratories, Inc.

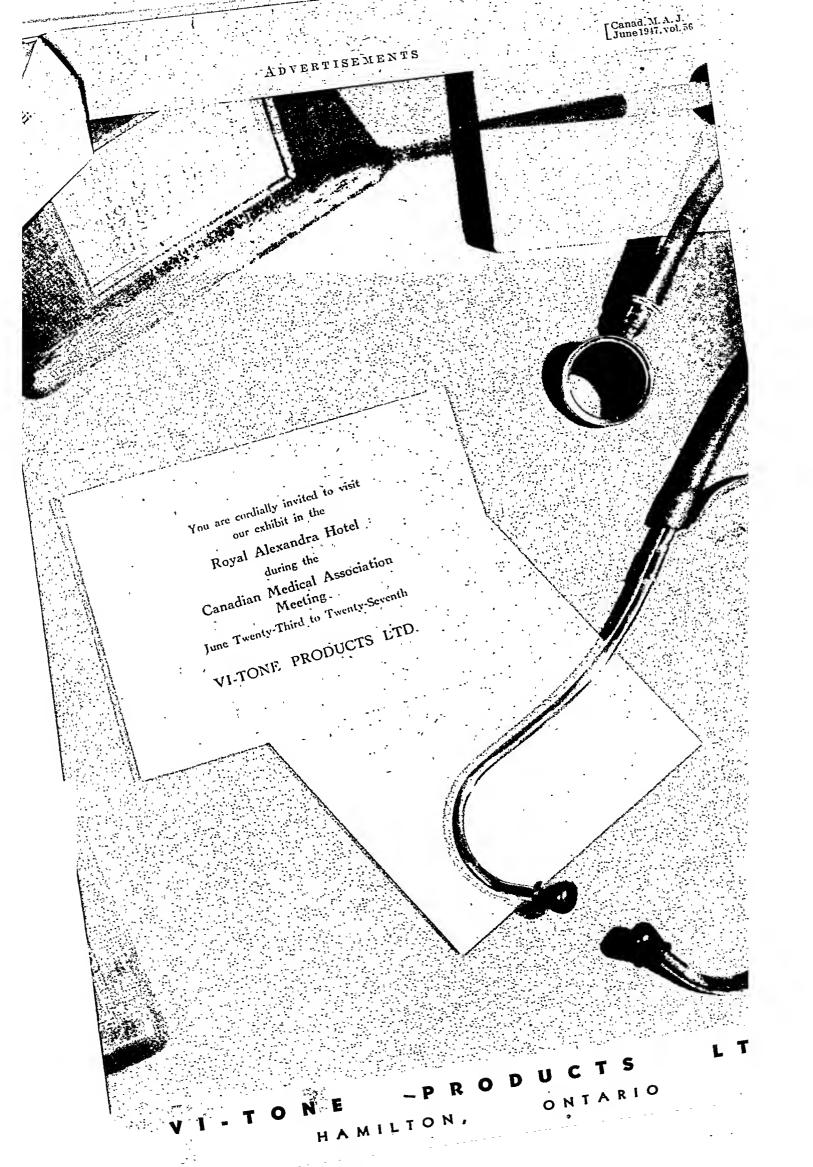


Distributed in Conada exclusively by

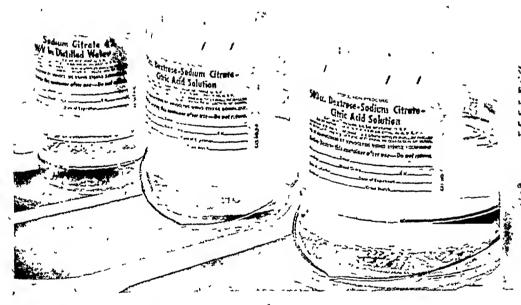
INGIRAME & BIEILIL

TORONTO

MONTREAL - WINNIPEG - CALGARY - VANCOUVER



BAXTER



200nc Dextrose 50% WIV

Closed systems for blood and plasma transfusions, today so widely accepted, were introduced by Baxter.

Transfuso-Vacs, Plasma-Vacs, Centri-Vacs and accessories reduce contamination risk and make for safer, simpler transfusion techniques. No other method is used in so many hospitals. Manufactured by

BAXTER LABORATORIES
Glenview, Illinois Acton, Ontario



Distributed in Canada exclusively by

INGRAMI& BIEILIL

-IMITE

TORONTO

MONTREAL . WINNIPEG . CALGARY . VANCOUVER



Crown Brand and Lily White Corn Syrups are well known to the medical profession as a thoroughly safe and satisfactory carbohydrate for use as a milk modifier in the bottle feeding of infants.

These pure corn syrups can be readily digested and do not irritate the delicate intestinal tract of the infant.

Either may be used as an adjunct to any milk formulæ.

Crown Brand and Lily White Corn Syrups are produced under the most exacting hygienic conditions by the oldest and most experienced refiners of corn syrups in Canada, an assurance of their absolute purity

"CROWN BRAND" and "LILY WHITE" CORN SYRUPS

Manufactured by

THE CANADA STARCH COMPANY Limited

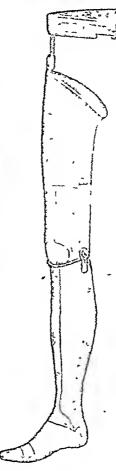
Montreal and Toronto

For Doctors Only

A convenient pocket calculator, with varied infant feeding formulæ employing these two famous corn syrups . . . a scientific treatise in book form for infant feeding . . . and infant formula pads, are available on request, also an interesting booklet on prenatal care Kindly clip the coupon and this material will be mailed to you immediately

THE	CANADA	STARCE	i CO. Lim	ited
		Montreal		
Please send	me			
FEEDING	CALCUL	ATOR.		
Book "CO	RN SYRI	IPS FOR	INFANT	FEEDING."
INFANT I			AINE MINE .	. replud.
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
☐ Book "TH	E EXPEC	TANT M	other."	
Book "DE	XTROSO	L.**		
Name	••			
Address				

ARTIFICIAL LIMBS



Specializing on light Dural Metal and English Willow Limbs worn without Shoulder Straps.

Improved and successful method in fitting short thigh stumps and hip disarticulations.

It is our policy to consult Surgeon before soliciting patient.

Personal training given to patients in the use of Hanger Limbs.

TRUSSES, BELTS, BRACES

Treatise on amputations.

Catalogue and demonstration given on request.

THE HANGER LIMB CO.

Head Office established 1861

85 KING ST. WEST, TORONTO
Phone EL. 5797

1409 CRESCENT ST., MONTREAL Phone LA. 9810 (

Psychiatry

A new six-page leaflet entitled *Psychiatry*, by Florence L. Rome, has just been issued by Occupational Index, Inc., New York University, New York'3, N.Y. A thorough survey of the field, this pamphlet is now available for 25c. cash with order.

Here is information on the growth of psychiatry, inture prospects, description of the work, qualifications and preparation necessary, methods of entrance and advancement, salary ranges, number and distribution of doctors already in the field, advantages and disadvantages. Sources of further information are listed and selected references for additional reading included.

Duncan

1847



1947



☆ MADE IN GREAT BRITAIN

☆ PURITY . ☆ STABILITY ☆ RELIABILITY

THE ANAESTHETIC

CHLOROFORM

OF CHOICE

MANUFACTURED BY
DUNCAN, FLOCKHART & CO.
EDINBURGH - LONDON



Distributed in Conada exclusively by

INGRAMI& BIEILIL

LIMITED TORONTO MONTREAL - WINNIPEG - CALGARY - VANCOUVER

ARTHRITIS and ECZEMA of endogenous origin

claimed to be allergic, may be favored or induced by calcium and sulphur deficiency, impaired cell action, and imperfect elimination of toxic waste.

LYXANTHINE ASTIER

administered per os, brings about improved cell nutrition and activity, increased elimination, resulting symptom relief, and general functional improvement.

Write for information

-17

ROUGIER FRERES

TAXOL

FOR
CONSTIPATION
NON HABIT FORMING

CAROVIT

Provitamin A and Chlorophyll tablets

ANAEMIAS, NERVOUS FATIGUE, NIGHT BLINDNESS

CONTINENTAL LABORATORIES

LONDON - ENGLAND

J. EDDÉ Ltd., Hew Birks Bidg., MONTREAL

GENERAL AGENTS FOR CANADA

Magnolax absorbs intestinal toxins

A unique therapeutic effect distinguishes Magnolax—a stable emulsion of liquid paraffin and milk of magnesia—from ordinary laxatives and cathartics. This property makes it of supreme value in the treatment of intestinal stasis.

Magnolax absorbs and carries out of the system various harmful and putrefactive products, such as indol, phenols and other intestinal toxins.

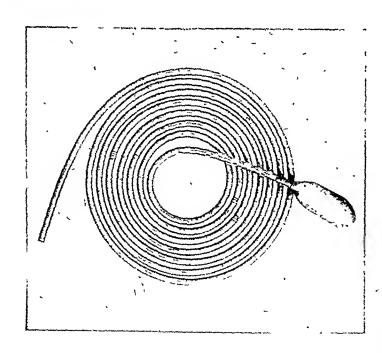
And Magnolax does not contain phenolphthalein which may irritate the colon and cause damage to the liver in sensitive persons, especially children.

HENRY K. WAMPOLE & CO., LIMITED

Manufacturing Pharmacists
PERTH, ONTARIO, CANADA

A simplified tube for

INTESTINAL INTUBATION . . . The CANTOR TUBE -



Described by Dr Meyer O Cantor, Detroit, American Journal of Surgery, July 1946 and April 1947

Order from your Surgical Supply Dealer

The CANTOR TUBE is a latex bag-tipped, mercury weighted, single lumen tube. It is 18 Tr. and 10 feet long. Its movement down the alimentary tract is actuated by a combination of free-flowing qualities of the mercury and the peristaltic action on the bolus formed by the mercury in the bag. Mercury is given the maximum motility by the loose latex bag attached distal to the tube. It is the only tube utilizing all the physical properties of mercury.

Tubes are marked as follows to indicate their position: "S" for stomach at the 17" mark, "P" for pylorus at the 24" mark, "D" for duodenum at the 30" mark, then in feet at the 4, 5, 6, 7, S and 9 feet marks.

Secondary dilatation of the stomach can be decompressed by withdrawing the tube a short distance, cutting holes into the tube, and allowing the tube to be pulled down by peristalsis at which point the boles will open to the stomach which, on applying suction, will be decompressed.

Replacement latex bags are easily cemented to the tube.

FEATURES . .

- Greater case of intubation—first, ease of passage through the nares and nasopharynx; and second, case of passage through the pylorus. Of 100 cases 96% were successfully intubated.
- More efficient decompression—resulting from larger luminal diameter and less possibility of plugging.
- 3. Complete absence of any metal parts which might injure the mucosa.
- D-110 CANTOR INTESTINAL DECOMPRESSION TUBE, 18 Fr., 10 feet long, with bag attached, with instructions for use.
- D-110/B LATEX BAG for Cantor Intestinal Decompression Tube with instructions for replacement of bag (With each dozen bags one tube of D-110/C Cement is supplied without charge).
- D-110/C RUBBER CEMENT for attaching replacement bags to the Cantor Tube



The Canadian Medical Protective Association

PRESIDENT - JOHN F. ARGUE, M.D.

A mutual medical defence union founded in 1901, Incorporated by act of Dominion Parliament, February, 1913, and affiliated with the Canadian Medical Association, 1924.

OBJECTS: To assist in the defence of its members in cases of alleged malpractice, and to encourage honourable practice in the daily work of the medical profession.

Subject to our by-laws, assistance is given by the payment of the taxable costs of actions together with reasonable counsel and witness fees in cases undertaken by our Association, as well as damages if awarded. All members in good standing of the Canadian and various Provincial Medical Associations may be enrolled upon signing the application form and paying the annual fee. All other regularly qualified practitioners must have their application countersigned by two members of our Association.

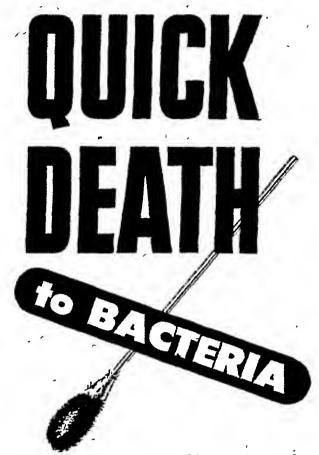
Address All Correspondence to the Secretary-Treasurer,
Suite 401, 180 Metcalfe St., Ottawa, Canada

APPLICATION FOR MEMBERSHIP

I, aged a Print name in full. qualified practitioner of the Regular School of Medicine hereby apply to be enrolled as a member of the Canadian Medical Protective Association.
I am a graduate of
in the year, and a duly licensed practitioner
of the Province of
n member in good standing of
Signature
Address
Recommended by two members of the Association, unless applicant is a member in good standing of the Canadian or any Provincial Medical Association.

Dated at, 19
The Annual fee is five dollars per calendar year, half

rates after July 1st. (Payable at par, Ottawa.)



Rapid killing of bacteria is one of Iodine's outstanding characteristics. Many investigators and prominent surgeons and scientists are quoted by Gershenfeld and Patterson in the American Journal of Pharmacy (January 1945). They point out that for four decades, Iodine has been prominently in the foreground as an antiseptic of choice for use as a skin disinfectant, particularly for the treatment of minor injuries and in preoperative surgical procedures.

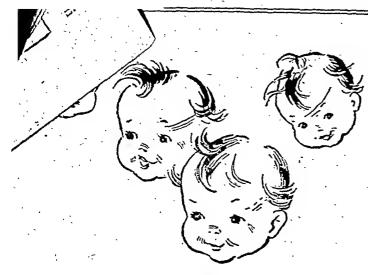
In addition to its remarkable anriseptic and fungicidal action, Iodine and its compounds serve the medical profession in many ways.

Its necessity in the prevention of goirer and its usefulness as an adjunct in the reabsorption of granulomatous lesions are important contributions in the fields of Prevention and Therapy.

Moreover, the value of organic iodine compounds as radio-opaque substances makes Iodine exceptionally useful in certain diagnostic procedures.



IODINE EDUCATIONAL BUREAU, INC. 120 Broadway, New York 5, N. Y.



Why KLIM is easily assimilated by infants

One of the reasons why many doctors suggest Klim for infant feeding is that it is whole milk of improved digestibility.

Klim is more easily assimilable by an infant's delicate, undeveloped digestive system because the powdering process in manufacture causes Klim to form a finer fat droplet and a softer protein curd!

The quality of Klim never varies! The first can is exactly like the 50th, the 100th, the 1000th. And Klim is packed in a vacuum tin. Nothing—not even air—can enter to alter the contents of the package.

Klim contains the fat and protein, vitamins and minerals that are essential to a soundly balanced diet. You can present Klim with complete confidence!

For professional information and feeding tables, about Klim write: The Borden Company, Limited, Spadina Crescent, Toronto 4, Ontario, Canada.







First in preference the world over

SODASORB

Specify SODASORB

for the most efficient CO₂ absorption in anesthesia, in oxygen therapy, in metabolators...3 mesh sizes...2 moisture grades. SODASORB is available in regular or indi-

THOSEADORS

TOTAL

TOTA

cator types. Non-deliquescent.

Free from caking, dusting, or heating. Specify SODASORB—

a medical standard.

SODASORB A PRODUCT OF

DEWEY AND ALMY CHEMICAL COMPANY OF CANADA, LTD.

MONTREAL 32, QUEBEC





Model 711

For All-Around Service

GOMCO
Portable Suction and Ether Units

The Gonico "711" is an ideal choice where complete suction and pressure facilities are required, without ether administration. Regulating valves, safety-overflow valve and precision gauges are standard equipment.

GOMCO SURGICAL MANUFACTURING CORP.

S2SM East Ferry St., Buffalo 11, N.Y.

TOMITO TOMPHIENT Reclaires



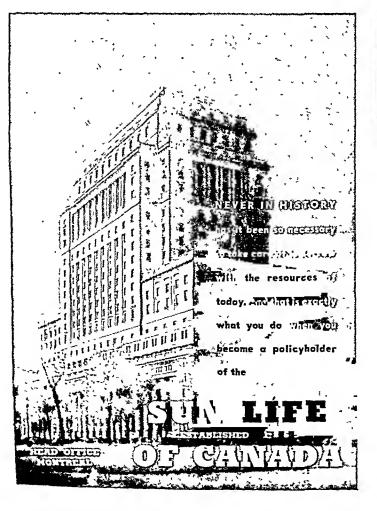




Homewood Sanitarium

Nervous and mild mental conditions are treated at Beautiful Homewood by proven, modern methods, under the individual care of physicians, nurses and therapists with many years of specialization. Many fine buildings, situated amid 75 acres of lovely landscape, provide accommodation for 140 patients. Pastimes, games, crafts, in most comfortable, private surroundings help the hours to pass quickly. Rates moderate. Write for illustrated folder.

F. H. C. Baugh, M.D., Medical Supt.
The Homewood Sanitarium of Guelph, Ontario, Limited



SANATORIUM HOSPITAL FOR ALCOHOLIC PATIENTS

Private Hospital License No. 30

Wood Sanatorium provides facilities for the treatment of alcoholism, and is your specialized hospital service for alcoholic patients. As such, we provide a decidedly practical assistance to physicians in this field of treatment.

Those patients, distressful and embarrassing to general practitioners and general hospitals, are here given specific attention. We believe there is sufficient evidence to show that the treatment, to those patients who have the requisite will, is effective.

We particularly request a personal visit. Fullest possible information and data will be provided.

J. J. WOOLNOUGH,

Phone RA. 6828

Manager.

43 WELLESLEY ST., TORONTO, ONT.

FELLOWSHIP OF POSTGRADUATE MEDICINE

1, Wimpole Street, London, W. 1.

with which is associated many of the General and Special Hospitals in Londan, is making every effort to provide postgraduate instruction and will be glad to give information regarding the facilities available. It must, however, be understood that facilities are still greatly curtailed.

It is still impossible to arrange and publish the usual list of instruction for the whole year. Courses are arranged as it is found practicable to da so, and special attention is paid to the requirements of candidates for the M.R.C.P. (London) and F.R.C.S. (England) examinations.

Courses may be attended by any qualified medical practitioner, but reduced fees are payable by pastgraduates who are Members of the Fellowship of Medicine.

(Annual Membership subscriptian, from manth of joining, £1.1s.0d., including the "Post Graduate Medical Journal". Practitianers, while resident abroad may subscribe to the Journal only for 12s. per annum, post free.)

MAURICE DAVIDSON, M.D., F.R.C.P., DAVID LEVI, M.S., F.R.C.S.,

Honorary Secretaries

VORLD FAMOUS AUTHORITIES SEARCH THE WORLD'S MEDICAL LITERATURE



To Bring You the Latest Advances in your Specialty

In Obstetrics and Gynecology with

In Pediatrics with

Quarterly Review of Obstetrics and Gynecology **Quarterly Review** of Pediatrics

These authoritative journals are two of the noteworthy group of Quarterly Reviews published by the Washington Institute of Medicine. Each is separately edited by a large board of outstanding specialists, who serve without remuneration as a contribution to medical progress. Each editorial board carefully selects and presents, in condensed, yet practical form, all significant advances in its own special field which are reported in the medical literature of the entire world. All journals are full-sized (6¾" x 10") with from 100 to 200 pages of text.

QUARTERLY REVIEW OF OBSTETRICS and GYNECOLOGY (First published, in 1936, by the Washington Institute of Medicine, under the name, "Obstetrics—Gynecology Survey") contains the latest developments, diagnostic methods, and medical and surgical procedures in these fields, selected by a board of thirty obstetrical and gynecological authorities. This material is presented so clearly, with editorial commentary, that it may be applied safely and successfully in the reader's own practice. For ease in reading and reference, all material is classified under twenty-four separate headings. Each issue is indexed by subject and author; and yearly cumulative indexes are included in each October issue. Published quarterly in January, April, July and October. Subscription, \$9.00 a year. Handsome 1-year binder, \$2.00.

QUARTERLY REVIEW OF PEDIATRICS presents, in condensed form, all the important new material in every branch of Pediatrics. Its editorial board of seventeen pediatric authorities do far more than merely abstract articles; they classify material under thirty-four separate headings, list review articles, provide accurate bibliographical data and supply authoritative critical or interpretative comment. The journal's l'Bookshelf' department reports on new books of pediatric interest. The Quarterly Review of Pediatrics is, in many respects, the equivalent of a continuous seminar in this special field. Each issue is thoroughly indexed; and yearly cumulative indexes are included in each November issue. Published quarterly, in February, May, August and November. Subscription, \$9.00 a year. Handsome 1-year binder, \$2.00,

OTHER QUARTERLY REVIEWS IN RELATED FIELDS

QUARTERLY REVIEW OF MEDICINE Presents all significant advances in internal medicine and allied specialties, including cardiology and gastroenterology, \$9.00 a year. 1-year binder, \$2.00.

QUARTERLY REVIEW OF SURGERY Provides a concise and authoritative picture of cutrent progress, trends and opinions in all branches of Surgery, \$9.00 a year. 1-year binder, \$2.00.

GENERAL PRACTICE CLINICS The Special Journal for the General Practitioner. For the specialist, its comprehensive coverage provides a valuable perspective on current developments in fourteen important fields of special practice. Now only \$5.00 a year (formerly \$9.00). Published quarterly. 1-year binder, \$2.00.

Published by

Washington Institute of Medicine



1720 M STREET, N.W. WASHINGTON 6, D.C.

EDITORIAL BOARD OF QUARTERLY REVIEW OF OBSTETRICS AND GYNECOLOGY

Fred L. Adair, M.D.
Alfred C. Beck, M.D.
L. A Calkins, M.D.
Bayard Carter, M.D.
Willard R. Cooke, M.D.
Walter T. Dsnnreuther, M.D.
William J. Dieckmann, M.D.
L. A. Emse, M.D.
James R. Goodall, M.D.
E. O. Hamblen, M.D.
Bernstel J. Hisnley, M.D.
John W. Harris, M.D.
D. Nelson Henderson, M.D.
C. B. Ingraham, M.D.
Frederick C. Itving, M.D.
William F. Mencert, M.D.
Norman F. Miller, M.D.
Robert D. Mussey, M.D.
Franklin L. Payne, M.D.
Lowis E. Phaneul, M.D.
E. D. Plass, M.D.
Edwin M. Robertson, M.D.
Lewis C. Scheffley, M.D.
Edwin M. Robertson, M.D.
Lewis C. Scheffley, M.D.
Lewis C. Scheffley, M.D.
Herbert Thoms, M.D.
Herbert T. Trauf, M.D.
Herbert F. Trauf, M.D.
Horits W.-Yaux, M.D.
James Young, M.D.

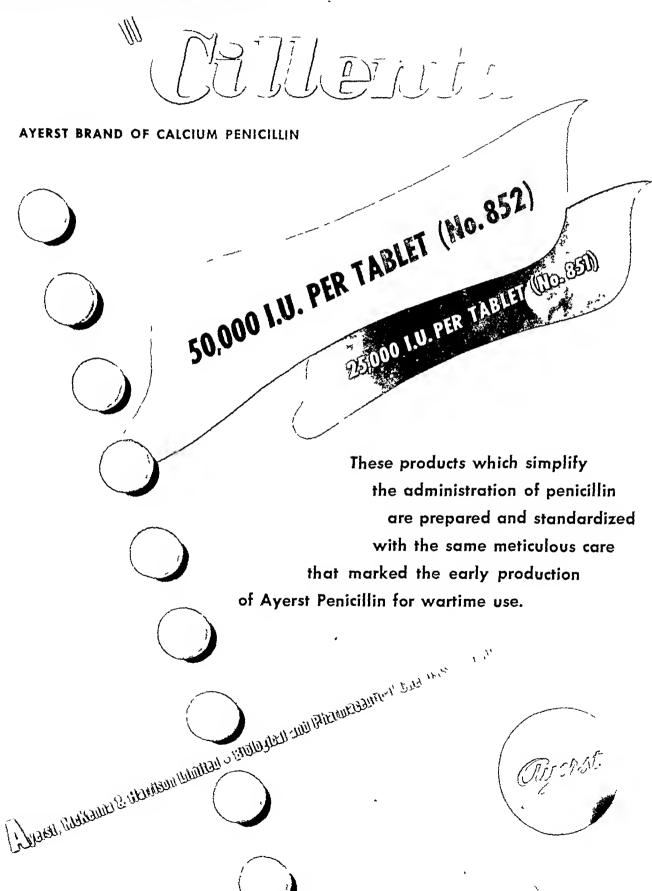
EDITORIAL BOARD OF QUARTERLY REVIEW OF PEDIATRICS

IRYING J. WOLMAN, M D., Editor-in Chief, Children's Hospital, Philadelphia, Pa.

Philadelphia, Pa.
Allen M Butler, M D.
Daniel C. Darrow, M.D.
Ethel C Dunham, M D.
Harold F. Faber, M D.
Sidney Farber, M D.
Clifford G Grules, M D.
Henry F. Helmholz, M D.
Sam Z. Lovine, M D.
Hugh McCulloch, M.D.
Donovan J. McCune, M D.
Hirlon M. G. M.D.
Mitchell I Rubin, M D.
Mitchell I Rubin, M D.
Joseph Stokes, Jr., M D.
Frederick F. Tisdail, M D.

*	
WASHINGTON INSTITUTE OF MEDICINE	Quarterly Review of Obstetrics and Gynecology (\$9.00)
1720 M Street, N.W., Washington 6, D. C.	Quarterly Review of Psychiatry and Neurology (\$9.00)
m	Quarterly Review of Pediatrics (\$9.00)
Please enter my subscription for the following:	Quarterly Review of Medicine
I enclose \$herewith.	Quarterly Review of Surgery (\$9.00)
	Quarterly Review of Urology (\$9.00)
Name	Quarterly Review of Ophthalmology (\$9.00)Quarterly Review of Otorhinolaryngology and
. 1411//	Broncho-Espahanology
_	Broncho-Esophagology (\$9,00) Quarterly Review of Dermatology and Syphilology (\$9.00)
Street	Quarterly Review of Roentgenology
<u>.</u>	Carran airi ci i : · · · · · · · · · · · · · (\$9.00)
CityState	Send a rear Practice Clinics (\$5.00)
 	•

ENICILLIN FOR ORAL USE



"BUT THEY WILL NOT EAT THE RIGHT KIND OF FOOD . . . "



• Appetite-appeal and instinct are too often accepted as sound nutritional guides, despite general recognition of the fact that health and well-being depend on adequate nutrition.

The need for professional guidance in nutrition is therefore obvious.

DIETARY SUPPLEMENT B.D.H. **VITAMINS**

each capsule contains Vitamin A....1,500 int. units Pro-vitamin A (Beta-carotene)

Riboflavin (Vitamin B₂) 1.0 mgm. Nicotinamide.....10.0 mgm. (Vitamin C).....25.0 mgm.

MINERALS

each tablet contains Ferrous Sulphate Exsiccated B.P......2.0 grains Calcium Phosphate

B.P..... 2.0 grains To preserve the thiamine hydrochloride from the known destructive action of iron salts, Dietary Supplement B.D.H. is presented in two parts—the vitamins in capsules and the minerals in tablets.

One Capsule and One Tablet Constitute a Single Dose

Dietary Supplement B.D.H. is designed to provide a convenient method of supplementing the diet of those who "will not eat the right kind of food."

> Issued in cartons containing one bottle of 100 capsules and one of 100 tablets.

THE BRITISH DRUG HOUSES.

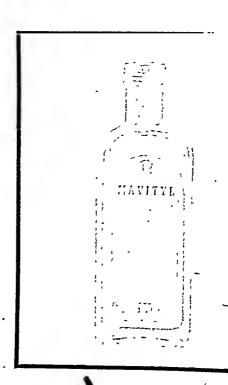
(CANADA) LIMITED

TORONTO

CANADA



PRODUCT



MAVITYL is valuable following infections, also in general debility, neuritis, neurasthenia, anorexia and in cases of deficiency due to restricted diet or during convalescence.

MAVITYL

a safe, effective tonic

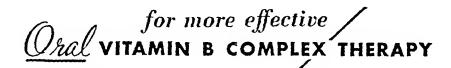
providing adequate amounts of VITAMINS A, B1 and D - PHOSPHORUS - CALCIUM [and MALT EXTRACT

Each fluid ounce contains:

Vitamin A Vitamin D Vitamin B ₁ (Thiamine Hydrochloride) Sodium Potassium and Calcium Hypophos-	4,000 U.S.P. Units 800 Int. Units
phite	10 grs.
Invert Sugar Malt Extract	460 grs.
	ต.ร.

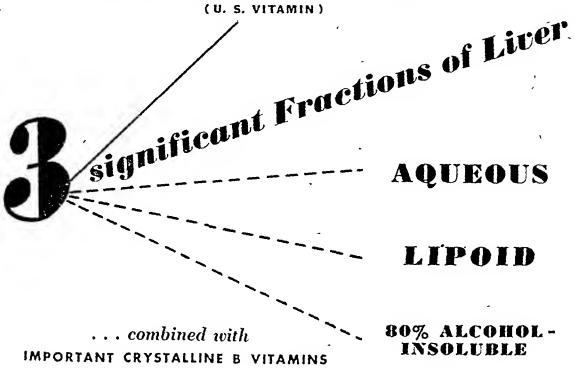


CHARLES R. WILL & COMPANY LIMITED London



LIPO-HEPLEX

(U.S. VITAMIN)



Current laboratory and clinical investigations show that a combination of the aqueous and lipoid fractions of liver, providing more complete nutritional therapy, is clinically superior to aqueous extracts alone . . . since certain essential nutritional factors are removed in the preparation of the usual aqueous liver extracts.



provides in each capsule the vitamin extracts and concentrate (water-soluble, 80% alcohol-insoluble and lipoid fractions) derived from a total of 11.5 grams of liver ... including folic-acid fractions (L. casei factor [Bc] etc.), biotin, inositol, and other nutritional factors present in the liver fractions. Each capsule contains: Thiamine HCI (B₁)..... 2.0 mg. Riboflavin (B₂) 2.0 mg. Pyridoxine HCl (B₆)..... 0.1 mg. Folic-acid fractions

Professional Samples and Literature

U. S. VITAMIN CORPORATION . NEW YORK 17, N. Y.

t's an established fact...







That ...

"FARMER'S WIFE"

PARTLY SKIMMED MILK

with

A VITAMIN D POTENCY OF

400 INTERNATIONAL UNITS

PER RECONVERTED QUART

(HALF "FARMER'S WIFE" - HALF WATER)

IS ON SALE

The increased Vitamin D potency—400 International Units per reconverted quart—lower fat content—and higher Protein content of "Farmer's Wife" Partly Skimmed Concentrated Milk makes it an ideal milk for the artificial feeding of infants

LOWER IN FAT . . . HIGHER IN PROTEIN

Because of the low fat content "Farmer's Wife" Concentrated Milk can be tolerated and as a result provides a higher Protein percentage in the resulting mixture and a much higher Protein fat ratio, similar to that seen in Protein milk.

The higher irradiation assures better protection against rickets in normal or delicate babies and children, helps good bone and tooth development and aids in the growth of infants.

You can recommend "Farmer's Wife" Concentrated Milk as an excellent dietary source of Vitamin D-400 International Units per reconverted quart

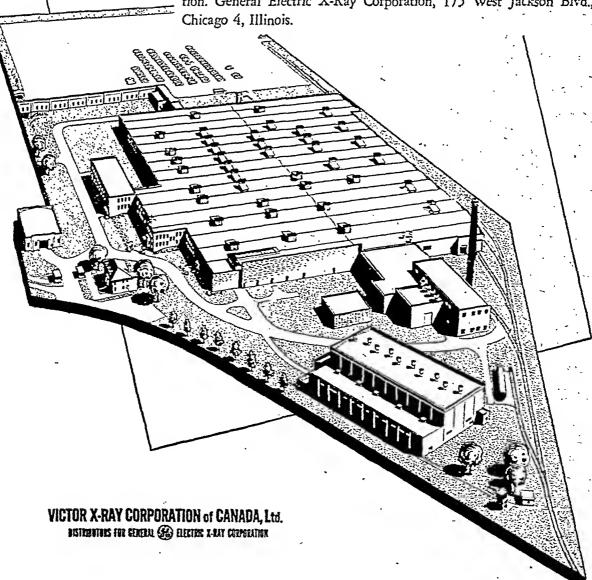
43-ACRE REMEDY FOR GROWING PAINS

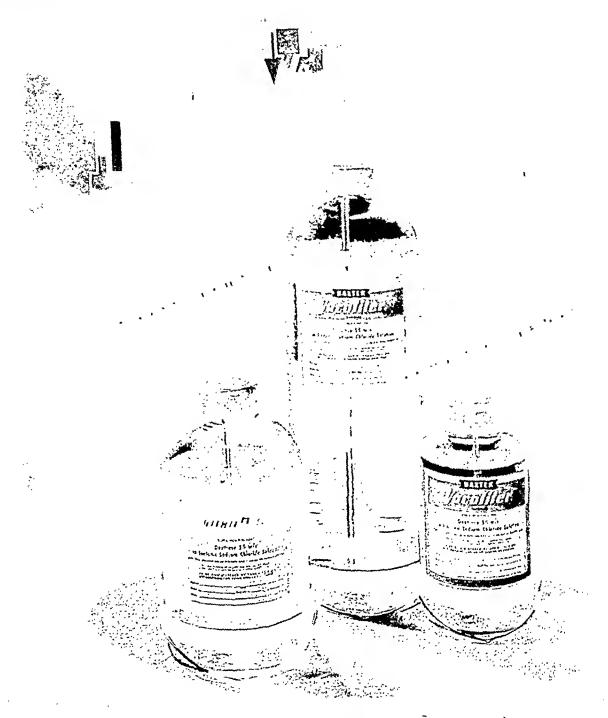
We think it's a healthy sign when a 51-year-old organization has growing pains. And our remedy is the purchase of a new 43-acre plant located in Milwaukee. It includes adequate provision for expanding production and accelerating engineering research and development of radiographic and therapeutic apparatus.

Important to you is the fact that the move from Chicago to Milwaukee will mean no interruption of the production schedules established to meet present delivery promises.

Our Chicago plant will continue to run at full capacity. The Milwaukee plant, already in operation, will gradually assume an increasing share of the manufacturing load.

Here, in this modern manufacturing facility, is concrete evidence of our plans to meet present and future demands of your profession. And your demands will be met without sacrificing the high quality and efficiency that have always characterized the products of this organization. General Electric X-Ray Corporation, 175 West Jackson Blvd., Chicago 4, Illinois.





Simpler, safer and more efficient procedures in parenteral therapy were pioneered by Baxter.

Since Baxter solutions were introduced, Baxter has specialized in one field—the development and production of parenteral products that make for a trouble-free program for your hospital. No other method is used in so many hospitals.

Manufactured by

BAXTER LABORATORIES
Glenview, Illinois Acton, Onturio

Produced and distributed in the eleven Western states by DON BAXTER, Inc., Glendale, California



Like an old friend, tried and true, Cheracol` can be depended upon-

- 1. to mitigate the severity of a cough without abolishing it
- 2. to loosen viscid and tenacious sputum without disagreeable taste or irritation
- 3. to soothe both topically and systemically

Cheracol is always welcomed by the patient. It is palatable, effective, and available. One to three teaspoonfuls every 2 to 4 hours save the patient's strength and give him needed rest.

Supplied in bottles of 16, 80, and 160 fluidounces.



*Trademark



Now Available in Canada



THE QUAPTY CRYSTAL IS THE MOST PRECISE FREQUENCY CONTROL PHOWN TO MODERN SCIENCE

FEATURED BY

Encased in Beautifully Styled Cabinets; Held to Exact Frèquency by Crystal Control, in Accordance with Proposed F. C. C. Regulations; Superior Theraupeutic Results — THE ULTIMATE DIATHERMY OF THE FUTURE NOW!

Simple 10 operate— Efficacious — Reliable — Durable — Madern.

> MODERATE IN PRICE

AMERICAN DIATHERMY PRODUCTIONS

10860 SANTA MONICA BOULEVARD • LOS ANGELES 25, CALIFORNIA

THE

TORONTO

COMPANIES

WINNIPEG

CALGARY

VANCOUVER

The "NON-TOXIC" alkaloids

GENOSCOPOLAMINE

Polonovski and Nitzberg

EXERTS REMARKABLE THERAPEUTIC EFFECTS ON

- The distressing stiffness
- The muscular hypotonus
- The excessive sialorrhæa of

PARKINSON'S DISEASE

Form	Size	- Dosage
Granules	60 x ½ mg.	2 Granules three times daily.
Drops	20 cc.	Average Dose: 20 drops (equalling 1 mg. Genoscopolamine) three times daily.

GENATROPINE

Polonovski and Nitzberg

CLINICAL RESULTS have proved the value of GENATROPINE in the treatment of

- TRAVEL SICKNESS
- INTESTINAL PAIN
- HYPER-ACID DYSPEPSIA
- PYLORIC STENOSIS

and all vagotonic disturbances

Form	Size	Dosage
Granules Drops	60 x ½ mg. 20 cc.	1 to 3 two or three times a day, two hours after meals. 10 to 30 drops (equalling ½ to 1½ mg. Genatropine) two or three times a day, 2 hours after meals.
Ampoules	10 x 1 cc. x 2 mg.	1 to 3 Ampoules to be injected daily subcutaneously.

GENESERINE

Polonovski and Nitzberg

A VALUABLE SEDATIVE for troubles of the sympathetic system

- HYPO-ACIDITY, ATONIC DYSPEPSIA
- The solar syndrome
- TACHYCARDIA
- PALPITATION OF HYPER-EXCITABLE HEARTS

Form	Size	Dosage
Granules Drops	60 x ½ mg. 20 cc.	2 to 3 at each of the three principal meals. 20 to 30 drops (equalling 1 to 1½ mg. Geneserine) at each of the
Ampoules	10 x 1 cc. x 2 mg.	three principal meals. 1 ampoule to be injected daily subcutaneously.

LABORATORIES AMIDO

Literature obtainable from:

VINANT Ltd., 200 Vallée Street, MONTREAL Sole Agents for Canada

In treating Para-nasal Infection

Bacteriostatic Decongestion is the MEANS Restoring Normal Function is the GOAL

with ARGYROL

the Decongestant without Rebound Action

In recent literature emphasis is being given to the after effects that frequently follow use of vasoconstrictors because of their rebound action.

Such untoward results do not accompany the use of ARGYROL, the bacteriostatic decongestant that



When the physician uses ARGYROL he knows that he is contributing most to recovery through support of nature's own First Line of Defense.

The cleansing, demulcent, bacteriostatic action of ARGYROL is attained by its three-fold action.



Three-Fold Action of ARGYROL:

- 1. ARGYROL is decongestive, without irritation to the membrane, and without ciliary injury.
- 2. ARGYROL is powerfully bacteriostatic, yet is non-toxic to tissue.
- 3. ARGYROL stimulates secretion and cleanses, thereby enhancing Nature's own first line of defense.

Three-Fold Approach to Para-nasal Therapy:

- The nasal meatus ... by 20 per cent ARGYROL instillations through the nasolacrimal duct.
- 2. The nasal passages : . . with 10 per cent ARGYROL solution in drops.
- The nasal cavities ::: with 10 per cent ARGYROL by nasal tamponage.

ARGYROL the Physiologic
Anti-infective with broad, sustained action



Made only A. C. BARNES COMPANY LIMITED, Ste. Thérèse, Que. by the ARGYROLLE a registered trade mark, the property of A. C. BARNES Company limited